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## Personal

Born on November 9, 1974.

Japanese.

## Career Experience

Guest Associate Professor, Graduate School of Engineering, Osaka University, Japan, April 2018 – present.

Senior Researcher, Center for Information and Neural Networks, National Institute of Information and Communications Technology, Japan, May 2017 – present.

Visiting Professor, Cluster of Excellence Cognitive Interaction Technology, Bielefeld University, Germany, January 2017 – present.

Specially Appointed Associate Professor, Graduate School of Engineering, Osaka University, Japan, October 2009 – April 2017.

Visiting Researcher, Cluster of Excellence Cognitive Interaction Technology, Bielefeld University, Germany, October 2009 – December 2016.

Part-time Lecturer, Kyoto Institute of Technology, Japan, April 2015 – September 2015.

Postdoc Researcher, Graduate School of Research Institute for Cognition and Robotics, Bielefeld University, Germany, February 2008 – September 2009.

Postdoc Researcher, Faculty of Technology, Bielefeld University, Germany, April 2006 – January 2008.

Postdoc Researcher, National Institute of Information and Communications Technology, Japan, April 2004 – March 2006.

Part-time Lecturer, Faculty of Technology, Tokyo University of Agriculture and Technology, Japan, December 2003 – March 2004.

Research Associate, Graduate School of Engineering, Osaka University, Japan, November 2002 – March 2004.

## Education

Ph.D. in Engineering, Osaka University, Japan, March 2004.

*Dissertation title: "Understanding the Development of Joint Attention from a Viewpoint of Cognitive Developmental Robotics"*

*Committee: Minoru Asada (Chair), Hiroshi Ishiguro, Yoshiaki Shirai*

Master of Engineering, Aoyama Gakuin University, Japan, March 1999.

Bachelor of Engineering, Aoyama Gakuin University, Japan, March 1997.

## Research Interests

### Cognitive developmental robotics

My primary research goal is directed toward understanding the underlying mechanisms for human cognitive development by means of computational approaches. Although studies in developmental psychology have revealed dynamical processes of cognitive development, what biological and social mechanisms enable infants to acquire various cognitive abilities is not yet fully understood. Inspired by recent findings in cognitive science and neuroscience, I have proposed a theory that predictive learning of sensorimotor information plays a key role in cognitive development. My experiments demonstrated that computational models based on the theory enabled robots to acquire cognitive functions such as self-other cognition, imitation, joint attention, and prosocial behaviors as infants do through social interaction. Furthermore, the theory has been extended to account for atypical development like autism by modifying parameters such as tolerance in predictive learning. The theory is now widely acknowledged as a potential underlying mechanism for cognitive development in the fields of both cognitive science and robotics.

### Assistive systems for autism spectrum disorder (ASD)

My secondary research interests include understanding atypical perception in ASD and designing assistive systems for it. ASD is a neurodevelopmental disorder characterized by impairments in social interaction and by preference for repetitive and stereotyped behaviors. Recent studies, however, suggest that atypical perception such as sensory hyperesthesia and hypoesthesia might be more crucial for ASD as it seems to cause difficulties in social interaction. I have been investigating the mechanism and environmental causes of atypical perception from a computational approach. A synthetic cognitive experiment I designed uncovered what visual and audio stimuli trigger what types of atypical visual symptoms (e.g., high contrast, dotted noise) and revealed potential neural and sensory correlates for the symptoms. I also developed a head-mounted display system that simulates ASD's visual world based on the above findings. The system has been showing a great impact on the society as it allows typically developed people to share ASD's difficulties and to reconsider a better way of assisting people with ASD.

## Awards

1. Best Student Paper Award of the 5th International Conference on Human-Agent Interaction, October 2017.
2. JSAI Annual Conference Award of the 30th Annual Conference of the Japanese Society for Artificial Intelligence, May 2017.
3. Babybot Challenge 1st Place Award of the 5th IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2015.
4. AI Award of the RoboCup Japan Open, May 2015.
5. Best Presentation Award of the 31st Annual Conference of the Japanese Cognitive Science Society, November 2014.
6. Presidential Award for Achievement of Osaka University, July 2014.
7. Best Paper Research Award of the RAAD Workshop: Robotics in Alpe-Adria-Danube Region, September 2013.
8. Presidential Award for Achievement of Osaka University, August 2013.
9. Japanese Society for Artificial Intelligence SIG Research Award, June 2013.
10. Research Award of the RoboCup Japan Open, May 2013.
11. Best Paper Award Finalist of the 16th Annual RoboCup International Symposium, June 2012.

12. Best Poster Presentation Award of the 12th Annual Meeting of the Japanese Society of Baby Science, June 2012.
13. AI Award of the RoboCup Japan Open, May 2012.
14. Best Paper Award Finalist of the 16th IEEE International Symposium on Robot and Human Interactive Communication, August 2008.
15. Best Presentation Award of the 22nd Annual Conference of the Japanese Cognitive Science Society, July 2005.

## Publications

### *Journal Articles*

1. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Modeling development of multimodal emotion perception guided by tactile dominance and perceptual improvement," *IEEE Transactions on Cognitive and Developmental Systems*, available online.
2. Francisco Cruz, Sven Magg, **Yukie Nagai**, and Stefan Wermter, "Improving interactive reinforcement learning: What makes a good teacher?," *Connection Science*, available online.
3. Jun-Cheol Park, Dae-Shik Kim, and **Yukie Nagai**, "Learning for Goal-directed Actions using RNNPB: Developmental Change of "What to Imitate"," *IEEE Transactions on Cognitive and Developmental Systems*, available online.
4. Yuji Kawai, **Yukie Nagai**, and Minoru Asada, "Prediction Error in the PMd as a Criterion for Biological Motion Discrimination: A Computational Account," *IEEE Transactions on Cognitive and Developmental Systems*, available online.
5. Jimmy Baraglia, Maya Cakmak, **Yukie Nagai**, Rajesh P. N. Rao, and Minoru Asada, "Efficient human-robot collaboration: when should a robot take initiative?," *The International Journal of Robotics Research*, vol. 36, no. 5-7, pp. 563-579, June 2017.
6. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Imitation of human expressions based on emotion estimation by mental simulation," *Paladyn, Journal of Behavioral Robotics*, vol. 7, no. 1, pp. 40-54, December 2016.
7. Jimmy Baraglia, **Yukie Nagai**, and Minoru Asada, "Emergence of Altruistic Behavior Through the Minimization of Prediction Error," *IEEE Transactions on Cognitive and Developmental Systems*, vol. 8, no. 3, pp. 141-151, September 2016.
8. **Yukie Nagai**, "Investigating the Principle of Cognitive Developmental: Computational Models Based on Predictive Learning of Sensorimotor Information," *Baby Science*, vol. 15, p. 22-32, March 2016.  
**Yukie Nagai**, "[Answer] Investigating the Principle of Cognitive Developmental: Computational Models Based on Predictive Learning of Sensorimotor Information," *Baby Science*, vol. 15, p. 37-45, March 2016.
9. Hiroshi Fukuyama, Shibo Qin, Yasuhiro Kanakogi, **Yukie Nagai**, Minoru Asada, and Masako Myowa-Yamakoshi, "Infant's action skill dynamically modulates parental action demonstration in the dyadic interaction," *Developmental Science*, vol. 18, no. 6, pp. 1006-1013, November 2015.
10. Yuji Kawai, Yuji Oshima, Yuki Sasamoto, **Yukie Nagai**, and Minoru Asada, "A model for syntactic development of children: Acquisition processes of syntactic categories reflecting structures of Japanese, English, and Chinese languages," *Cognitive Studies*, vol. 22, no. 3, pp. 475-479, September 2015.
11. Emre Ugur, **Yukie Nagai**, Erol Sahin, and Erhan Oztop, "Staged Development of Robot Skills: Behavior Formation, Affordance Learning and Imitation with Motionese," *IEEE Transactions on Autonomous Mental Development*, vol. 7, no. 2, pp. 119-139, June 2015.

12. Emre Ugur, **Yukie Nagai**, Hande Celikkanat, and Erhan Oztop, "Parental scaffolding as a bootstrapping mechanism for learning grasp affordances and imitation skills," *Robotica*, vol. 33, no. 5, pp. 1163-1180, June 2015.
13. **Yukie Nagai** and Katharina J. Rohlfing, "Computational Analysis of Motionese Toward Scaffolding Robot Action Learning," *IEEE Transactions on Autonomous Mental Development*, vol. 1, no. 1, pp. 44-54, May 2009.
14. **Yukie Nagai**, "Joint Attention Learning based on Early Detection of Self-Other Motion Equivalence with Population Codes," *Journal of the Robotics Society of Japan*, vol. 25, no. 5, pp. 727-737, July 2007.
15. **Yukie Nagai**, Minoru Asada, and Koh Hosoda, "Learning for joint attention helped by functional development," *Advanced Robotics*, vol. 20, no. 10, pp. 1165-1181, September 2006.
16. **Yukie Nagai**, "A Constructivist Approach to Understanding the Role of Movement in the Development of Joint Attention," *Cognitive Studies*, vol. 13, no. 3, pp. 480-483, September 2006.
17. **Yukie Nagai**, Koh Hosoda, Akio Morita, and Minoru Asada, "Emergence of Joint Attention through Bootstrap Learning based on the Mechanisms of Visual Attention and Learning with Self-evaluation," *Transactions of the Japanese Society for Artificial Intelligence*, vol. 19, no. 1, pp. 10-19, January 2004.
18. **Yukie Nagai**, Koh Hosoda, Akio Morita, and Minoru Asada, "A constructive model for the development of joint attention," *Connection Science*, vol. 15, no. 4, pp. 211-229, December 2003.
19. Koh Hosoda, **Yukie Nagai**, and Minoru Asada, "Bootstrap for Emergence of Joint Attention," *IEICE technical report: Neurocomputing*, vol. 103, no. 392, pp. 25-30, October 2003.
20. **Yukie Nagai**, Minoru Asada, and Koh Hosoda, "Acquisition of Joint Attention by a Developmental Learning Model based on Interactions between a Robot and a Caregiver," *Transactions of the Japanese Society for Artificial Intelligence*, vol. 18, no. 2, pp. 122-130, March 2003.

### *Tutorial and Review Papers*

1. **Yukie Nagai**, "Cognitive Mirroring: Assisting people with developmental disorders by means of self-understanding and social sharing of cognitive processes," *Seitai No Kagaku*, vol. 69, no. 1, pp. 63-67, February 2018.
2. **Yukie Nagai**, "Simulator of ASD Visual Perception," *Japanese Journal of Clinical Psychology: Extra Number 9*, pp. 192-196, August 2017.
3. **Yukie Nagai**, "Importance and Open Issues of Sensorimotor Integration: Comments from Computational Approach," *Baby Science*, vol. 16, pp. 50-51, March 2017.
4. **Yukie Nagai** and Takato Horii, "Computational Modeling of Emotion Based on Predictive Learning," *Journal of the Japanese Society for Artificial Intelligence*, vol. 31, no. 5, pp. 694-701, September 2016.
5. **Yukie Nagai**, "Simulator of Atypical Visual Perception in Autism Spectrum Disorder," *Psychiatric Mental Health Nursing*, vol. 19, no. 1, pp. 59-63, January 2016.
6. **Yukie Nagai**, "Cognitive Developmental Robotics toward Emergence of KANSEI in Robots," *Journal of Japan Society of Kansei Engineering*, vol. 13, no. 4, pp. 195-199, December 2015.
7. **Yukie Nagai**, "Can Robotics Reveal Mysteries about Human Infants?," *Baby Science*, vol. 6, pp. 42-43, January 2007.
8. **Yukie Nagai**, "A Robotics Approach to Understanding the Development of Joint Attention," *HAT-TATSU*, vol. 27, no. 107, pp. 60-66, July 2006.

*Book Chapters*

1. **Yukie Nagai**, "Mechanism for Cognitive Development," *Cognitive Neuroscience Robotics: A: Synthetic Approaches to Human Understanding*, M. Kasaki, H. Ishiguro, M. Asada, M. Osaka, and T. Fujikado (Eds.), Springer, pp. 51-72, May 2016.
2. **Yukie Nagai**, "Development of Social Cognitive Functions Based on Predictive Learning of Sensorimotor Information," *Social Brain Living with Robots (in Japanese)*, N. Osaka (Ed.), Shinyosha, pp. 211-242, December 2015.
3. Yuji Kawai, Jihoon Park, Takato Horii, Yuji Oshima, Kazuaki Tanaka, Hiroki Mori, **Yukie Nagai**, Takashi Takuma, and Minoru Asada, "Throwing Skill Optimization through Synchronization and Desynchronization of Degree of Freedom," *Lecture Notes in Computer Science, RoboCup 2012: Robot Soccer World Cup XVI*, X. Chen, P. Stone, L. E. Sucar, and T. v. d. Zant (Eds.), Springer, vol. 7500, pp. 178-189, 2013.
4. Noriaki Mitsunaga, **Yukie Nagai**, Tomohiro Ishida, Taku Izumi, and Minoru Asada, "BabyTigers 2001: Osaka Legged Robot Team," *Lecture Note in Artificial Intelligence, RoboCup 2001: Robot Soccer World Cup V*, A. Birk, S. Coradeschi, and S. Tadokoro (Eds.), Springer, pp. 685-688, August 2002.
5. Noriaki Mitsunaga, **Yukie Nagai**, and Minoru Asada, "BabyTigers: Osaka Legged Robot Team," *Lecture Note in Artificial Intelligence, RoboCup 2000: Robot Soccer World Cup IV*, P. Stone, T. Balch, and G. K. Kraetzschmar (Eds.), Springer, pp. 631-634, June 2001.

*Peer-Reviewed Conference Papers*

1. **Yukie Nagai** and Niyati Rawal, "Where and Why Infants Look: A recurrent neural network for the development of visual attention," in *Proceedings of the 21st Biennial International Congress on Infant Studies*, accepted, June 30-July 3, 2018.
2. Jyh-Jong Hsieh, **Yukie Nagai**, and Minoru Asada, "Deficit of Prediction Ability as A Potential Cause of Phantom Noise in Autism Spectrum Disorder," in *Proceedings of the Annual Meeting of the Cognitive Neuroscience Society*, March 24-27, 2018.
3. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Active Perception based on Energy Minimization in Multimodal Human-robot Interaction," in *Proceedings of the 5th International Conference on Human-Agent Interaction*, pp. 103-110, October 17-20, 2017. (Best Student Paper Award)
4. Niyati Rawal, Takato Horii, and **Yukie Nagai**, "How does visual attention to face develop in infancy?: A computational account," in *Proceedings of the HAI 2017 Workshop on Representation Learning for Human and Robot Cognition*, October 17, 2017.
5. **Yukie Nagai**, "Mutual Shaping of Motionese and Infants' Action Learning: A Robotic Approach," in *Proceedings of the Biennial Meeting of the Society for Research in Child Development*, April 6-8, 2017.
6. Konstantinos Theofilis, Jason Orlosky, **Yukie Nagai**, and Kiyoshi Kiyokawa, "Panoramic View Reconstruction for Stereoscopic Teleoperation of a Humanoid Robot," in *Proceedings of the IEEE-RAS 16th International Conference on Humanoid Robots*, pp. 242-248, November 15-17, 2016.
7. Junko Matsuzaki, Kuriko Kagitani-Shimono, Sho Aoki, Yoko Kato, Ryuzo Hanaie, Mariko Nakanishi, Aika Tatsumi, Tomoka Yamamoto, Koji Tominaga, **Yukie Nagai**, Ikuko Mohri, and Masako Taniike, "Visual and auditory responses elicited by movie task in autism spectrum disorder: a magnetoencephalographic study," in *Proceedings of the Neuroscience 2016*, 120.13, November 12-16, 2016.
8. Thomas Hermann, Jiajun Yang, and **Yukie Nagai**, "EmoSonicS - Interactive Sound Interfaces for the Externalization of Emotions," in *Proceedings of the 11th Audio Mostly: A Conference on Interaction with Sound*, pp. 61-68, October 4-6, 2016.

9. Jorge L. Copete, **Yukie Nagai**, and Minoru Asada, "Motor development facilitates the prediction of others' actions through sensorimotor predictive learning," in Proceedings of the 6th IEEE International Conference on Development and Learning and on Epigenetic Robotics, September 19-22, 2016.
10. Hagen Lehmann, **Yukie Nagai**, and Giorgio Metta, "The question of cultural sensitive gesture libraries in HRI - An Italian - Japanese Comparison," in Proceedings of the ICDL-EpiRob 2016 Workshop on Vision and the Development of Social Cognition, September 19, 2016.
11. Beata J. Grzyb, **Yukie Nagai**, Minoru Asada, Iris van Rooij, and Angelo Cangelosi, "Deep developmental learning offers an explanation for toddlers' scale errors," in Proceedings of the 15th Neural Computation and Psychology Workshop, August 8-9, 2016.
12. **Yukie Nagai**, "How motor experiences alter action perception: A computational account," in Proceedings of the 20th Biennial International Congress on Infant Studies, May 26-28, 2016.
13. Jimmy Baraglia, Maya Cakmak, **Yukie Nagai**, Rajesh Rao, and Minoru Asada, "Initiative in Robot Assistance during Collaborative Task Execution," in Proceedings of the 11th ACM/IEEE International Conference on Human-Robot Interaction, pp. 67-74, March 7-10, 2016.
14. Lars Schillingmann and **Yukie Nagai**, "Yet Another Gaze Detector: An Embodied Calibration Free System for the iCub Robot," in Proceedings of the 15th IEEE-RAS International Conference on Humanoid Robots, pp. 8-13, November 3-5, 2015.
15. Joseph Burling, **Yukie Nagai**, and Hanako Yoshida, "Getting more from behavioral data: Computational approaches for exploring early visual experiences," in Proceedings of the 9th Biennial Meeting of the Cognitive Development Society, October 9-10, 2015.
16. **Yukie Nagai** and Minoru Asada, "Predictive Learning of Sensorimotor Information as a Key for Cognitive Development," in Proceedings of the IROS 2015 Workshop on Sensorimotor Contingencies for Robotics, October 2, 2015.
17. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Emotion Recognition and Generation through Multimodal Restricted Boltzmann Machines," in Proceedings of the IROS 2015 Workshop on Grounding robot autonomy: Emotional and social interaction in robot behaviour, October 2, 2015.
18. **Yukie Nagai**, Shibo Qin, Shinichiro Kumagaya, Satsuki Ayaya, and Minoru Asada, "Computational Analysis of Atypical Visual Perception in Autism Spectrum Disorder: Application to Perception Simulator," in Proceedings of the 32nd Annual Meeting of the Japanese Cognitive Science Society, pp. 32-40, September 18-20, 2015.
19. Oskar Palinko, Alessandra Sciutti, Lars Schillingmann, Francesco Rea, **Yukie Nagai**, and Giulio Sandini, "Gaze Contingency in Turn-Taking for Human Robot Interaction: Advantages and Drawbacks," in Proceedings of the 24th IEEE International Symposium on Robot and Human Interactive Communication, pp. 369-374, August 31-September 4, 2015.
20. Jimmy Baraglia, Jorge L. Copete, **Yukie Nagai**, and Minoru Asada, "Motor Experience Alters Action Perception Through Predictive Learning of Sensorimotor Information," in Proceedings of the 5th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 63-69, August 13-16, 2015. (Babybot Challenge 1st Place Award)
21. Emre Ugur, Jimmy Baraglia, Lars Schillingmann, and **Yukie Nagai**, "Use of speech and motion cues for bootstrapping complex action learning in iCub," in Proceedings of the 5th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 84-85, August 13-16, 2015.
22. Konstantinos Theofilis and **Yukie Nagai**, "A model of multimodal synchronization for humanoids robots interacting with humans," in Proceedings of the ICDL-EpiRob 2015 Workshop on Mechanisms of learning in social contexts, August 13, 2015.
23. **Yukie Nagai**, Takakazu Moriwaki, and Minoru Asada, "Influence of Excitation/Inhibition Imbalance on Local Processing Bias in Autism Spectrum Disorder," in Proceedings of the 37th Annual Meeting of the Cognitive Science Society, pp. 1685-1690, July 23-25, 2015.

24. Lars Schillingmann, Joseph M. Burling, Hanako Yoshida, and **Yukie Nagai**, "Gaze is not Enough: Computational Analysis of Infant 's Head Movement Measures the Developing Response to Social Interaction," in Proceedings of the 37th Annual Meeting of the Cognitive Science Society, pp. 2104-2109, July 23-25, 2015.
25. Hiroyuki Kanda, Takaomi Kanda, **Yukie Nagai**, and Takashi Fujikado, "Image processing using a saliency map for a 49-channel retinal prosthesis," in Proceedings of the Annual Meeting of the Association for Research in Vision and Ophthalmology, May 3-7, 2015.
26. **Yukie Nagai**, "A Model of Infant Preference Based on Prediction Error: How does motor development influence perception?," in Proceedings of the Biennial Meeting of the Society for Research in Child Development, March 19-21, 2015.
27. Lars Schillingmann, Joseph Burling, Hanako Yoshida, and **Yukie Nagai**, "How do Infants Coordinate Head and Gaze?: Computational Analysis of Infant 's First Person View in Social Interactions," in Proceedings of the Biennial Meeting of the Society for Research in Child Development, March 19-21, 2015.
28. Alessandra Sciutti, Lars Schillingmann, Oskar Palinko, **Yukie Nagai**, and Giulio Sandini, "A Gaze-contingent Dictating Robot to Study Turn-taking," in Proceedings of the 10th ACM/IEEE International Conference on Human-Robot Interaction, pp. 137-138, March 2-5, 2015.
29. Jimmy Baraglia, **Yukie Nagai**, and Minoru Asada, "State Prediction for Development of Helping Behavior in Robots," in Proceedings of the HRI 2015 Workshop on Cognition: A Bridge between Robotics and Interaction, pp. 11-12, March 2, 2015.
30. Takato Horii, **Yukie Nagai**, Lorenzo Natale, Francesco Giovannini, Giorgio Metta, and Minoru Asada, "Compensation of Tactile Hysteresis using Gaussian Process with Sensory Markov Property," in Proceedings of the 14th IEEE-RAS International Conference on Humanoid Robots, Thul2-2.16, November 2014.
31. Yuji Kawai, Yuji Oshima, Yuki Sasamoto, **Yukie Nagai**, and Minoru Asada, "Computational model for syntactic development: Identifying how children learn to generalize nouns and verbs for different languages," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 78-84, October 2014.
32. Yuji Kawai, Minoru Asada, and **Yukie Nagai**, "A model for biological motion detection based on motor prediction in the dorsal premotor area," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 241-247, October 2014.
33. Jimmy Baraglia, **Yukie Nagai**, and Minoru Asada, "Prediction Error Minimization for Emergence of Altruistic Behavior," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 273-278, October 2014.
34. Jorge L. Copete, **Yukie Nagai**, and Minoru Asada, "Development of goal-directed gaze shift based on predictive learning," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 334-339, October 2014.
35. Takato Horii, Francesco Giovannini, **Yukie Nagai**, Lorenzo Natale, Giorgio Metta, and Minoru Asada, "Contact force estimation from flexible tactile sensor values considering hysteresis by Gaussian process," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 102-103, October 2014.
36. Shibo Qin, **Yukie Nagai**, Shinichiro Kumagaya, Satsuki Ayaya, and Minoru Asada, "Autism Simulator Employing Augmented Reality: A Prototype," in Proceedings of the 4th IEEE International Conference on Development and Learning and on Epigenetic Robotics, pp. 123-124, October 2014.
37. Hiroyuki Kanda, Takaomi Kanda, **Yukie Nagai**, Minoru Asada, and Takashi Fujikado, "Feasibility of a Saliency Map for a 49-channel Retinal Prosthesis," in Proceedings of the 8th The Eye and The Chip World Research Congress, p. 64, September 2014.

38. Yuji Kawai, Yuji Oshima, Yuki Sasamoto, *Yukie Nagai*, and Minoru Asada, "A model for syntactic development of children: Acquisition processes of syntactic categories reflecting structures of Japanese, English, and Chinese languages," in Proceedings of the 31st Annual Meeting of the Japanese Cognitive Science Society, pp. 126-133, September 2014. (Best Presentation Award)
39. Jun-Cheol Park, Dae-Shik Kim, and **Yukie Nagai**, "Developmental Dynamics of RNNPB: New Insight about Infant Action Development," in Proceedings of the 13th International Conference on Simulation of Adaptive Behavior, pp. 144-153, July 2014.
40. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Toward analysis of emotional development using physiological and behavioral data," in Proceedings of the HRI 2014 Workshop on HRI: A Bridge between Robotics and Neuroscience, pp. 47-48, March 2014.
41. Emre Ugur, **Yukie Nagai**, and Erhan Oztop, "Affordance based imitation bootstrapping with motionese," in Proceedings of the International Workshop on Developmental Social Robotics, pp. 9-14, November 2013.
42. Emre Ugur, **Yukie Nagai**, and Erhan Oztop, "Parental scaffolding as a bootstrapping mechanism for learning grasp affordances and imitation skills," in Proceedings of the 22nd International Workshop on Robotics in Alpe-Adria-Danube Region, September 2013. (Best Paper Research Award)
43. Takato Horii, **Yukie Nagai**, and Minoru Asada, "Touch and Emotion: Modeling of developmental differentiation of emotion lead by tactile dominance," in Proceedings of the 3rd IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2013.
44. Jimmy Baraglia, **Yukie Nagai**, and Minoru Asada, "Action Understanding using an Adaptive Liquid State Machine based on Environmental Ambiguity," in Proceedings of the 3rd IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2013.
45. Joseph M. Burling, Hanako Yoshida, and **Yukie Nagai**, "The Significance of Social Input, Early Motion Experiences, and Attentional Selection," in Proceedings of the 3rd IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2013.
46. **Yukie Nagai**, Shibo Qin, Hiroshi Fukuyama, Masako Myowa-Yamakoshi, and Minoru Asada, "Fine-grained Analysis of Spatiotemporal Contingency in Infant-Caregiver Interaction," in Proceedings of the Biennial Meeting of the Society for Research in Child Development, April 2013.
47. Anja K. Philippsen, Kai A. Mismahl, Britta Wrede, and **Yukie Nagai**, "Cross-Cultural Recognition of Auditive Feedback Using Echo State Networks," in Proceedings of 24. Konferenz zur Elektronischen Sprachsignalverarbeitung, March 2013.
48. **Yukie Nagai**, Akiko Nakatani, Shibo Qin, Hiroshi Fukuyama, Masako Myowa-Yamakoshi, and Minoru Asada, "Co-Development of Information Transfer within and between Infant and Caregiver," in Proceedings of the 2nd IEEE International Conference on Development and Learning and on Epigenetic Robotics, November 2012.
49. Jimmy Baraglia, **Yukie Nagai**, Yuji Kawai, and Minoru Asada, "The Role of Temporal Variance in Motions for the Emergence of Mirror Neurons Systems," in Proceedings of the 2nd IEEE International Conference on Development and Learning and on Epigenetic Robotics, November 2012.
50. Minoru Asada, **Yukie Nagai**, and Hisashi Ishihara, "Why not artificial sympathy?," in Proceedings of the International Conference on Social Robotics, pp. 278-287, October 2012.
51. Yuji Kawai, **Yukie Nagai**, and Minoru Asada, "Perceptual Development Triggered by its Self-Organization in Cognitive Learning," in Proceedings of the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 5159-5164, October 2012.
52. Yuji Kawai, Jihoon Park, Takato Horii, Yuji Oshima, Kazuaki Tanaka, Hiroki Mori, **Yukie Nagai**, Takashi Takuma, and Minoru Asada, "Throwing Skill Optimization through Synchronization and Desynchronization of Degree of Freedom," in Proceedings of the 16th Annual RoboCup International Symposium, June 2012. (Research Award of the RoboCup Japan Open, Best Paper Award Finalist)



53. Emre Ugur, Hande Celikkanat, Erol Sahin, **Yukie Nagai**, and Erhan Oztop, "Learning to Grasp with Parental Scaffolding," in Proceedings of the 11th IEEE-RAS International Conference on Humanoid Robots, pp. 480-486, October 2011.
54. **Yukie Nagai**, Yuji Kawai, and Minoru Asada, "Emergence of Mirror Neuron System: Immature vision leads to self-other correspondence," in Proceedings of the 1st Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2011.
55. Marc Kammer, Thomas Schack, Marko Tscherepanow, and **Yukie Nagai**, "From Affordances to Situated Affordances in Robotics - Why Context is Important," in Proceedings of the 1st Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, August 2011.
56. Marc Kammer, Marko Tscherepanow, Thomas Schack, and **Yukie Nagai**, "A Perceptual Memory System for Affordance Learning in Humanoid Robots," in T. Honkela, W. Duch, M. A. Girolami, and S. Kaski, editors, International Conference on Artificial Neural Networks, Lecture Notes in Computer Science, vol. 6792, pp. 349-356, June 2011.
57. Go Tanaka, **Yukie Nagai**, and Minoru Asada, "Bottom-up Attention Improves Action Recognition Using Histograms of Oriented Gradients," in Proceedings of the 12th IAPR Conference on Machine Vision Applications, pp. 467-470, June 2011.
58. **Yukie Nagai**, Akiko Nakatani, and Minoru Asada, "How a robot's attention shapes the way people teach," in Proceedings of the 10th International Conference on Epigenetic Robotics, pp. 81-88, November 2010.
59. Claudia Muhl, **Yukie Nagai**, and Joerg Bergmann, "What happens to interaction within an experiment in social robotics? - An example of applying video methodology for investigating technological systems," in Proceedings of the Biennial Conference of EASST (The European Association for the Study of Science and Technology), September 2010.
60. **Yukie Nagai**, "Stability and Sensitivity of Bottom-Up Visual Attention for Dynamic Scene Analysis," in Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 5198-5203, October 2009.
61. **Yukie Nagai**, "From Bottom-Up Visual Attention to Robot Action Learning," in Proceedings of the 8th IEEE International Conference on Development and Learning, June 2009.
62. Anna-Lisa Vollmer, Katrin S. Lohan, Kerstin Fischer, **Yukie Nagai**, Karola Pitsch, Jannik Fritsch, Katharina J. Rohlfing, and Britta Wrede, "People Modify Their Tutoring Behavior in Robot-Directed Interaction for Action Learning," in Proceedings of the 8th IEEE International Conference on Development and Learning, June 2009.
63. Thomas Schack, **Yukie Nagai**, Sebastian Wrede, Bettina Blaesing, and Helge Ritter, "Building Blocks and Architecture of Performance in Humans and Robots - Consequences for Applied Sportpsychology," in Proceedings of the 12th ISSP World Congress of Sport Psychology, June 2009.
64. **Yukie Nagai**, "Modeling Infants' Attention to Investigate Parental Scaffolding for Imitation," in Proceedings of the Biennial Meeting of the Society for Research in Child Development, April 2009.
65. **Yukie Nagai** and Katharina J. Rohlfing, "Parental Action Modification Highlighting the Goal versus the Means," in Proceedings of the 7th IEEE International Conference on Development and Learning, August 2008.
66. **Yukie Nagai**, Claudia Muhl, and Katharina J. Rohlfing, "Toward Designing a Robot that Learns Actions from Parental Demonstrations," in Proceedings of the 2008 IEEE International Conference on Robotics and Automation, pp. 3545-3550, May 2008.
67. **Yukie Nagai** and Katharina J. Rohlfing, "Computational Analysis of Motionese: What can infants learn from parental actions?" in Proceedings of the 16th International Conference on Infant Studies, March 2008.

68. **Yukie Nagai** and Claudia Muhl, "How does a disturbance affect people in HRI? (video)" in Proceedings of the Third ACM/IEEE International Conference on Human-Robot Interaction, p. 385, March 2008.
69. **Yukie Nagai** and Katharina J. Rohlfing, "Parental Signal Indicating Significant State Change in Action Demonstration," in Proceedings of the 7th International Conference on Epigenetic Robotics, pp. 205-206, November 2007.
70. Claudia Muhl, **Yukie Nagai**, and Gerhard Sagerer, "On Constructing a Communicative Space in HRI," in KI 2007: Advances in Artificial Intelligence (30th Annual German Conference on AI), J. Hertzberg, M. Beetz, and R. Englert (Eds.), Springer, pp. 264-278, September 2007.
71. Claudia Muhl and **Yukie Nagai**, "Does Disturbance Discourage People from Communicating with a Robot?" in Proceedings of the 16th IEEE International Symposium on Robot and Human Interactive Communication, pp. 1137-1142, August 2007. (Best Paper Award Finalist)
72. **Yukie Nagai** and Katharina J. Rohlfing, "Can Motionese Tell Infants and Robots "What to Imitate"?" in Proceedings of the 4th International Symposium on Imitation in Animals and Artifacts, pp. 299-306, April 2007.
73. Verena V. Hafner and **Yukie Nagai**, "Imitation Behaviour Evaluation in Human Robot Interaction," in Proceedings of the 6th International Workshop on Epigenetic Robotics, pp. 175-176, September 2006.
74. **Yukie Nagai**, "Does a synesthetic mechanism aid robot's language learning?" in Proceedings of the 50th Anniversary Summit of Artificial Intelligence, July 2006.
75. Katharina J. Rohlfing, Britta Wrede, and **Yukie Nagai**, "Models of Infant Development: How to make sense of environmental interaction and dynamics?" in Proceedings of the 15th International Conference on Infant Studies, June 2006.
76. **Yukie Nagai**, "Learning to Comprehend Deictic Gestures in Robots and Human Infants," in Proceedings of the 14th IEEE International Workshop on Robot and Human Interactive Communication, pp. 217-222, August 2005.
77. **Yukie Nagai**, "A Constructivist Approach to Understanding the Role of Motion Information in Development of Joint Attention," in Proceedings of the 22nd Annual Meeting of the Japanese Cognitive Science Society, pp. 14-15, July 2005. (Best Presentation Award)
78. **Yukie Nagai**, "Self-Other Motion Equivalence Learning for Head Movement Imitation," in Proceedings of the 4th IEEE International Conference on Development and Learning, p. 127, July 2005.
79. **Yukie Nagai**, "The Role of Motion Information in Learning Human-Robot Joint Attention," in Proceedings of the 2005 IEEE International Conference on Robotics and Automation, pp. 2081-2086, April 2005.
80. **Yukie Nagai**, "Joint Attention Development in Infant-like Robot based on Head Movement Imitation," in Proceedings of the Third International Symposium on Imitation in Animals and Artifacts, pp. 87-96, April 2005.
81. **Yukie Nagai**, Minoru Asada, and Koh Hosoda, "Detecting Contingency between Self and Other Triggers Social Behavior," in Proceedings of the Third International Conference on Development and Learning, October 2004.
82. **Yukie Nagai**, Koh Hosoda, and Minoru Asada, "How does an infant acquire the joint attention ability?: A Constructivist Approach," in Proceedings of the 14th International Conference on Infant Studies, May 2004.
83. **Yukie Nagai**, Koh Hosoda, and Minoru Asada, "Joint Attention Emerges through Bootstrap Learning," in Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 168-173, October 2003.

84. **Yukie Nagai**, Koh Hosoda, and Minoru Asada, "How does an infant acquire the ability of joint attention?: A Constructive Approach," in Proceedings of the 3rd International Workshop on Epigenetic Robotics, pp. 91-98, August 2003.
85. **Yukie Nagai**, Koh Hosoda, Akio Morita, and Minoru Asada, "Emergence of Joint Attention based on Visual Attention and Self Learning," in Proceedings of the 2nd International Symposium on Adaptive Motion of Animals and Machines, SaA-II-3, March 2003.
86. **Yukie Nagai**, Minoru Asada, and Koh Hosoda, "Developmental Learning Model for Joint Attention," in Proceedings of the 2002 IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 932-937, October 2002.
87. **Yukie Nagai**, Minoru Asada, and Koh Hosoda, "A Developmental Approach Accelerates Learning of Joint Attention," in Proceedings of the 2nd International Conference on Development and Learning, pp. 277-282, June 2002.
88. Ken Tomiyama and **Yukie Nagai**, "Distributed Management System with Hierarchical Structure for a Group of Mobile Robots," in Proceedings of the 2nd International Workshop on Advanced Mechatronics, pp. 230-235, December 1997.

#### *Invited Talks: International Conferences*

1. **Yukie Nagai**, "TBA," The 2nd International IRCN Symposium, Tokyo, Japan, December 17, 2018.
2. **Yukie Nagai**, "TBA," IROS 2018 Workshop on the utility of body, interaction and self learning in robotics, Madrid, Spain, October 1, 2018.
3. **Yukie Nagai**, "TBA," The 1st International Workshop on Computational Models of Affordance in Robotics, Pittsburgh, USA, June 29-30, 2018.
4. **Yukie Nagai**, "Robots that Learn to Interact with Others Like Infants," University of Twente, Enschede, Netherlands, February 22, 2018.
5. **Yukie Nagai**, "Predictive Learning: A computational theory that accounts for social cognitive development," Paderborn University, Paderborn, Germany, February 20, 2018.
6. **Yukie Nagai**, "Predictive Learning: A computational theory that accounts for social cognitive development," Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, February 16, 2018.
7. **Yukie Nagai**, "Predictive Learning: Computational theory that solves the puzzle of cognitive development," The 1st International Symposium on Systems Intelligence Division, Osaka, January 20-21, 2018.
8. **Yukie Nagai**, "Mental Simulation Based on Crossmodal Learning," ICDL-EpiRob 2017 Workshop on Computational Models for Crossmodal Learning, Lisbon, Portugal, September 18, 2017.
9. **Yukie Nagai**, "Development of Social Self through Predictive Learning," ICDL-EpiRob2017 Workshop on the Development of the Self: from self-perception to interaction under uncertainty, Lisbon, Portugal, September 18, 2017.
10. **Yukie Nagai**, "Predictive Coding for Robot Cognition," International Symposium on Neuroscience of Consciousness: Beyond NCC, Chiba, Japan, July 24, 2017.
11. **Yukie Nagai**, "Computational models for cognitive development," ISSA Summer School 2017, Osaka, May 22-June 2, 2017.
12. **Yukie Nagai**, "Predictive Learning: A Computational Account for Social Cognitive Development," Lorentz Center Workshop "Perspectives on Developmental Robotics", Leiden, the Netherlands, May 15-19, 2017.

13. **Yukie Nagai**, "Cognitive Mirroring: Computational Approach to Understanding and Assisting Autism Spectrum Disorder," International Symposium on Constructive Approach to Cognitive Development and Disorders, Bielefeld University, Bielefeld, Germany, March 13, 2017.
14. **Yukie Nagai**, "Predictive learning: Its key role in cognitive development," The 3rd International Symposium on Cognitive Neuroscience Robotics: Toward Constructive Developmental Science, Osaka, Japan, December 11-13, 2016.
15. **Yukie Nagai**, "Predictive Learning: A Computational Theory for Cognitive Development," Lecture at Radboud University, Nijmegen, Netherlands, November 10, 2016.
16. **Yukie Nagai**, "Learning with motionese: Human-robot interaction inspired by caregiver-infant interaction," IROS 2016 Workshop on Human-Robot Collaboration: Towards Co-Adaptive Learning Through Semi-Autonomy and Shared Control, Daejeon, Korea, October 10, 2016.
17. **Yukie Nagai**, "From cognition to social interaction based on predictive learning," IROS 2016 Workshop on Bio-inspired Social Robot Learning in Home Scenarios, Daejeon, Korea, October 10, 2016.
18. **Yukie Nagai**, "Predictive learning: A unified theory for cognitive development," International Workshop on Robotics in the 21st century: Challenges and Promises, Volpriehausen, Germany, September 25-28, 2016.
19. **Yukie Nagai**, "A Computational Approach to Predictive Learning Account for Cognitive Development," ICDL-EpiRob 2016 Workshop on Predictive Processing and Infant Development: The Current State-of-the-art, Cergy-Pontoise, France, September 19, 2016.
20. **Yukie Nagai**, "Predictive learning for robot cognition," EuroScience Open Forum "Cognition in humans and robots," Manchester, UK, July 23-27, 2016.
21. **Yukie Nagai**, "Intention reading and collaboration based on mirror neuron system," HRI 2016 Workshop on Intention Recognition in Human-Robot Interaction, Christchurch, New Zealand, March 7, 2016.
22. **Yukie Nagai**, "Emergence of mirror neuron system through predictive learning," The 2nd International Symposium on Cognitive Neuroscience Robotics: Before and Beyond Mirror Neurons, Osaka, Japan, February 23, 2016.
23. **Yukie Nagai**, "How ASD sees the world: Computational approaches to understanding atypical perception," International Workshop on Cognitive Development for Friendly Robots and Rehabilitation, Genoa, Italy, December 2-3, 2015.
24. **Yukie Nagai**, "Predictive Learning of Sensorimotor Information as a Key for Cognitive Development," Humanoids 2015 Workshop on Towards Intelligent Social Robots - Current Advances in Cognitive Robotics, Seoul, Korea, November 3, 2015.
25. **Yukie Nagai**, "Predictive learning as a key for cognitive development: New insights from developmental robotics," EAP CogSci 2015 Symposium on Cognitive Development and Architectures for Cognitive Robotics, Turin, Italy, September 25-27, 2015.
26. **Yukie Nagai**, "Emergence of self awareness in robot based on predictive learning," ISSA Summer School, Kobe, Japan, August 10, 2015.
27. **Yukie Nagai**, "Predictive Learning of Sensorimotor Information as a Key for Cognitive Development," ICAR 2015 Workshop on Robot Learning: Bottom-up and top-down development of robot skills, Istanbul, Turkey, July 31, 2015.
28. **Yukie Nagai**, "Predictive Learning of Sensorimotor Information as a Key for Cognitive Development," Open Lecture on Cognitive Interaction Design, Kyoto Institute of Technology, Kyoto, Japan, July 12, 2015.
29. **Yukie Nagai**, "Predictive Learning as a Key for Cognitive Development: New Insights from Developmental Robotics," Workshop on Cognitive Science and Robotics: New Approaches to Human Cognition and Robotics, University of Houston, Houston, USA, March 23, 2015.

30. **Yukie Nagai**, "Prediction Error Minimization: An Underlying Mechanism for the Emergence of Behavioral Coordination," HRI 2015 Workshop on Behavior Coordination between Animals, Humans and Robots, Portland, USA, March 2, 2015.
31. **Yukie Nagai**, "Predictive Learning as a Key for Cognitive Development," International Workshop on Cognitive Neuroscience Robotics, Osaka, Japan, December 2014.
32. **Yukie Nagai**, "Predictive Learning as a Key for Cognitive Development: New Insight from Developmental Robotics," Plymouth University CRNS Seminars, Plymouth, UK, October 2014.
33. **Yukie Nagai**, "Predictive Learning as a Key for Cognitive Development: New Insight from Developmental Robotics," Heriot-Watt University's MACS Computer Science Seminar Series, Edinburgh, UK, October 2014.
34. **Yukie Nagai**, "What can robotics teach us about infant development?: Contingency learning as a key for cognitive development," Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany, July 2014.
35. **Yukie Nagai**, "Computational Methods to Analyze the Dynamics of Infant-Caregiver Interaction," ICIS 2014 Pre-Conference on Head-Mounted Eye Tracking, Berlin, Germany, July 2014.
36. **Yukie Nagai**, "An Interaction-Based Development of Human-Robot Joint Attention and Self/Other Cognition," International Conference: Going Beyond the Laboratory - Ethical and Societal Challenges for Robotics, Delmenhorst, Germany, February 2014.
37. **Yukie Nagai**, "What can robotics teach us about self-other recognition?," CiNet Friday Lunchtime Seminar Series, CiNet, Osaka, Japan, January 2014.
38. **Yukie Nagai**, "Designing Teachable Robots: How to take multidimensionality of mind perception into account?," IROS 2013 Workshop on Towards Social Humanoid Robots: What makes interaction human-like?, Tokyo, Japan, November 2013.
39. **Yukie Nagai**, "Contingency as a key for cognitive development: From self-other recognition to joint attention," IROS 2013 Workshop on Cognitive Robotics Systems: Replicating Human Actions and Activities, Tokyo, Japan, November 2013.
40. **Yukie Nagai**, "Development of Self through Other: Emergence of Mirror Neuron System and Social Interaction," RobotDoc International Conference on Development of Cognition, Osaka, Japan, August 2013.
41. **Yukie Nagai**, "Developmental Robotics to Investigate Interpersonal Coordination," CogSci 2013 Workshop on Embodied Approaches to Interpersonal Coordination: Infants, Adults, Robots, and Agents, Berlin, Germany, July 2013.
42. **Yukie Nagai**, "How social interaction shapes the way robots learn," HRI 2013 Workshop on Collaborative Manipulation: New Challenges for Robotics and HRI, Tokyo, Japan, March 2013.
43. **Yukie Nagai**, "Can Robots Learn to Communicate like Infants?," Houston University, Houston, TX, USA, November 2012.
44. **Yukie Nagai**, "The Importance of Starting Small in Robot Learning: Lessons from Human Intelligence," The 15th International Conference on Artificial Intelligence: Methodology, Systems, Applications, Varna, Bulgaria, September 2012.
45. **Yukie Nagai**, "How Interaction Shapes the Way Robots Learn," AIMS 2012 Workshop on Advances in Robot Learning and Human-Robot Interaction, Varna, Bulgaria, September 2012.
46. **Yukie Nagai**, "Robots That Learn to Communicate with Humans," Workshop on Intelligent Human-Machine Collaboration, The National Academy of Sciences, Washington DC, USA, June 2012.
47. **Yukie Nagai**, "Reading Intentions from Motionese: Analyzing and Designing Caregiver-Infant Interaction," Workshop on "Reading intentions: From children to robots," Lund, Sweden, March 2012.

48. **Yukie Nagai**, "Mutual Shaping between Caregivers' Scaffolding and Infants' Development: New Insights from Cognitive Developmental Robotics," The 12th Winter Workshop on Mechanism of Brain and Mind, Rusutsu Resort Hotel, Hokkaido, Japan, January 2012.
49. **Yukie Nagai**, "What Should Robots Learn from Caregiver-Infant Interaction?," ShanghAI Lecture, October 2011.
50. **Yukie Nagai**, "The Role of Maturation Constraints in Infant Development," AGAI Club, Bielefeld University, Germany, June 2011.
51. **Yukie Nagai**, "My Research Stay in Bielefeld," Forschungsfoerderung im deutsch-japanischen Austausch, Japan Week, Bielefeld University, Germany, June 2011.
52. **Yukie Nagai**, "Researchers' Life in Osaka," All about Osaka University, Japan Week, Bielefeld University, Germany, June 2011.
53. **Yukie Nagai**, "How a robot's attention shapes the way people teach: Bottom-up vs. top-down attention," CoR-Lab colloquium, Bielefeld University, Germany, October 2010.
54. **Yukie Nagai**, "Investigating Pedagogy by Modeling Infant Visual Attention," Workshop at the Annual Meeting of the Cognitive Science Society 'Intuitive Pedagogical Reasoning: An Interdisciplinary Workshop,' Amsterdam, Netherland, July 2009.
55. **Yukie Nagai**, "A Developmental Approach to Robot Action Learning," Cognitive Sciences Brown Bags, University of Zurich, Switzerland, December 2008.
56. **Yukie Nagai**, "Visual Action Structuring by Motionese," Workshop on 'Intermodal Action Structuring,' Bielefeld, Germany, July 2008.
57. **Yukie Nagai**, "Human-Robot Communications: A Constructivist Approach to Understanding the Human Communication Mechanism," INPRO Kolloquium, Berlin, Germany, June 2006.
58. **Yukie Nagai**, "The Role of Movement in the Development of Joint Attention: A Robotic Approach," in Proceedings of the 15th International Conference on Infant Studies, Kyoto, Japan, June 2006.
59. **Yukie Nagai**, "Robots that learn to establish joint visual attention," PRI Cooperative Research Workshop "Gaze, Joint Attention, and Theory of Mind," Aichi, Japan, August 2005.
60. **Yukie Nagai**, "Cognitive Developmental Modeling of Joint Attention," International Workshop on Processes of Communication, Bielefeld, Germany, February 2005.

#### *Invited Talks: Domestic Conferences*

1. **Yukie Nagai**, "TBA," The 35th Annual Meeting of the Japanese Cognitive Science Society, OS "Cognitive Mirroring and Social Cognition", Osaka, August 30-September 1, 2018.
2. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," World Autism Awareness Day, Osaka, April 28, 2018.
3. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," NPO Challenge Club, Osaka, February 25, 2018.
4. **Yukie Nagai**, "Development and its Disorder of Human Brain Investigated by Robotics," the 17th Friday Science Salon, Osaka, February 9, 2018.
5. **Yukie Nagai**, "Hyper- and hypo-sensitivity in audiovisual perception in autism spectrum disorder: Synthetic approach based on predictive coding hypothesis," SIG-ADD Symposium, Tokyo, January 28, 2018.
6. **Yukie Nagai**, "Simulator of ASD's Visual Perception: Understanding and sharing of its difficulties from the first person's perspective," Symposium of Japanese Journal of Clinical Psychology "Tojisha-Kenkyu", Tokyo, January 27, 2018.

7. **Yukie Nagai**, "Cognitive Mirroring: Assisting people with developmental disorders from first-person view," JST-NSF International Joint Symposium, Tokyo, December 20, 2017.
8. **Yukie Nagai**, "Cognitive Developmental Robotics for Understanding and Assisting Cognitive Mechanisms," CiNet Neuroscience Workshop at Consortium for Applied Neuroscience, Tokyo, December 8, 2017.
9. **Yukie Nagai**, "Computational Models of Cognitive Development and its Disorders Based on Predictive Coding," The 4th Kanazawa University Child Summit, Kanazawa, November 30-December 2, 2017.
10. **Yukie Nagai**, "Cognitive Mirroring: Assisting people with developmental disorders by means of self-understanding and social sharing of cognitive processes," The 6th Symposium of Japanese Society of Developmental Neuroscience, Osaka, November 25-26, 2017.
11. **Yukie Nagai**, "Applying Advanced Technology to Society!: A case study on assistance for developmental disorder," IoT startup seminar, Osaka, October 5, 2017.
12. **Yukie Nagai**, "Neural Basis of Empathy: A Computational Approach to the Development of Mirror Neuron System," Meeting on "AI that empathizes with human," Tokyo, July 31, 2017.
13. **Yukie Nagai**, "Robot and Mind," The 7th CiNet Symposium, Tokyo International Forum, Tokyo, June 29, 2017.
14. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Potential reasons for their communication difficulties," Senboku Shien Kyoiku-kenkyu, Osaka, June 12, 2017.
15. **Yukie Nagai**, "Mechanisms for Robots to Estimate Human Feelings and Intentions," Symposium on "Society with Robots Starting from HANDAI Robot Exhibition", Osaka, May 13, 2017.
16. **Yukie Nagai**, "Experiencing Visual World of Autism Spectrum Disorder," WAKUWAKU PROJECT JAPAN, Suwa, April 23, 2017.
17. **Yukie Nagai**, "AI Research for Understanding Humans: Our Future Led by Cognitive Developmental Robotics," Girls in Tech Japan, Osaka, February 23, 2017.
18. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," NPO Challenge Club, Osaka, January 22, 2017.
19. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Toward mental barrier-free," LabMeUp Vol.2 Learning Plus, BeyondLab TOKYO & Panasonic Wonder LAB Osaka, Osaka, December 10, 2016.
20. **Yukie Nagai**, "Synthetic approach to understanding cognitive developmental mechanisms based on predictive learning," The 5th Symposium on Developmental Neuroscience, Tokyo, November 26-27, 2016.
21. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," LITALICO Inc., Tokyo, October 15, 2016.
22. **Yukie Nagai**, "Discovering Self's and Others' Mind in Infants: Cognitive Developmental Robotics to Understand Emergence of Social Brain," Symposium of Science Council of Japan "Brain for Understanding Self and Others: Research on Social Brain from Interdisciplinary Approach," Science Council of Japan, Tokyo, September 10, 2016.
23. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," Nishinomiya Music Therapy, Hyogo, January 31, 2016.
24. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder: Why do they have difficulties in social communication?," Doza Kindergarten, Osaka, January 27, 2016.
25. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder," NPO Childs, Osaka, January 16, 2016.

26. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder," Handai-Asahi Nakanoshima Lecture Series, Nakanoshima Center, Osaka University, Osaka, December 2015.
27. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder," Kanto Tojisya Kenkyukai 2015 Summer, The University of Tokyo, August 2015.
28. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder," Experience of Atypical Visual Perception in Autism Spectrum Disorder, The University of Tokyo, July 2015.
29. **Yukie Nagai**, "Simulator of Atypical Perception in Autism Spectrum Disorder," Experience of Atypical Visual Perception in Autism Spectrum Disorder, Grand Front Osaka, April 2015.
30. **Yukie Nagai**, "Robotics Approach to Investigate Social Cognitive Development in Infants," Seminar on "Cognitive Interaction Design," Kyoto Institute of Technology, December 2014.
31. **Yukie Nagai**, "Abnormal Ability to Integrate Sensorimotor Information in Autism Spectrum Disorder," Seminar at Molecular Research Center for Children's Mental Development, Graduate School of Medicine, Osaka University, October 2014.
32. **Yukie Nagai**, "Infant Cognitive Development Based on Predictive Learning: A Synthetic Approach," The 14th K-Forum, Kayamori Foundation of Informational Science Advancement, Takayama, August 2014.
33. **Yukie Nagai**, "What Connect Self and Other: Mirror Neuron System and Social Contingency," JPA 2013 Symposium on Interdisciplinary Research on Connecting Mind, Sapporo, Japan, September 2013.
34. **Yukie Nagai**, "Development of Self-Other Recognition Based on Contingency: Constructive and Analytical Approach," Hominization, Primate Research Institute Kyoto University, Japan, March 2013.
35. **Yukie Nagai**, "Cognitive Developmental Robotics: What can roboticists learn from human development?," Lecture at Chiba Institute of Technology, Chiba, Japan, December 2012.
36. **Yukie Nagai**, "Emergence of Mirror Neuron System: A New Approach from Cognitive Developmental Robotics," The 12th Annual Meeting of the Japanese Society of Baby Science: Round Table "From Intersubjectivity to Self-Other Recognition in Infants," June 2012.
37. **Yukie Nagai**, "Exaggerations of Caregivers' Actions Assist Infants in Integrating Information," The 3rd Workshop on Informatics on Embodiment, Osaka University, March 2012.
38. **Yukie Nagai**, "The Importance of Maturation Constraints in Cognitive Development: A Synthetic Approach," The 66th IEEE Kansai Section Lecture Meeting, Kyoto University, December 2011.
39. **Yukie Nagai**, "Robotics Approach to Infant Cognitive Development," The 79th Lecture on Child Science, Konan Women's University, November 2011.
40. **Yukie Nagai**, "Cognitive Developmental Robotics: Investigating mysteries of human from robotics," Lecture at Chiba Institute of Technology, Chiba, June 2011.
41. **Yukie Nagai**, "Rethinking of Infant Development Inspired by Human-Robot Interaction," The 11th Annual Meeting of the Japanese Society of Baby Science, Gifu, May 2011.
42. **Yukie Nagai**, "Robotics that investigates humans," The 13th Tokimeki Seminar, Osaka, March 2011.
43. **Yukie Nagai**, "Robot Action Learning from Infant-directed Teaching of Caregivers," Hattatsu-shinka Lab. at Kyoto University, Kyoto, October 2010.
44. **Yukie Nagai**, "Cognitive Developmental Robotics: Building robots that develop and learn like humans," Lecture at Chiba Institute of Technology, Chiba, May 2010.
45. **Yukie Nagai**, "Cognitive Developmental Robotics: Building robots that develop and learn like humans," Lecture at Chiba Institute of Technology, Chiba, May 2009.



46. **Yukie Nagai**, "What Robotics Researchers Do?," Lecture at the 2nd Junior High School of Annaka-City, September 2005.
47. **Yukie Nagai**, "A Constructivist Approach to Understanding the Development of Joint Attention," Workshop on Interactive Design for Adaptation, Kyoto, April 2003.

(The complete list of my publications is available at <http://developmental-robotics.jp/en/publications/>.)

## Research Funds

### *Competitive Funds*

1. Grant-in-Aid for Scientific Research (A) "Corrective and Assistive Frameworks for Visual Perception using Head-Mounted Display" (Research project number: 18H04116), 2018.4–2022.3.  
Role: Principal investigator (Project leader: Kiyoshi Kiyokawa), Budget: JPY8,600,000
2. JST CREST "Cognitive Mirroring: Assisting people with developmental disorders by means of self-understanding and social sharing of cognitive processes," 2016.12–2022.3.  
Role: Project leader, Budget: JPY139,600,000 (Total: JPY300,000,000)
3. COI STREAM (Satellite) "Healthy development of children's mind exploiting the characteristic of their brains: Paradigm shift from atypicality to speciality," 2014.4–2022.3.  
Role: Principal investigator (Project leader: Yoshio Minabe), Budget: JPY12,308,000
4. Grant-in-Aid for Young Scientists (A) "Development of theory of mind from self-other cognition facilitated by maturational constraints: A constructive approach" (Research project number: 25700027), 2013.4–2016.3.  
Role: Project leader, Budget: JPY18,800,000
5. Grant-in-Aid for Scientific Research on Innovative Areas (Research in a proposed research area) "Constructive Developmental Science: Revealing the Principles of Development from Fetal Period and Systematic Understanding of Developmental Disorders" (Research project number: 24119001), 2012.6–2017.3.  
Role: Principal investigator (Project leader: Yasuo Kuniyoshi), Budget: JPY3,460,000
6. Grant-in-Aid for Scientific Research on Innovative Areas (Research in a proposed research area) "Modeling of social cognitive development and designing of assistance systems for developmental disorders" (Research project number: 24119003), 2012.6–2017.3.  
Role: Project leader, Budget: JPY85,300,000
7. Grant-in-Aid for Specially Promoted Research "Constructive Developmental Science Based on Understanding the Process from Neuro-Dynamics to Social Interaction" (Research project number: 24000012), 2012.5–2017.3.  
Role: Principal investigator (Project leader: Minoru Asada), Budget: JPY8,500,000
8. Grant-in-Aid for Challenging Exploratory Research "Emotion Recognition from Multimodal Information Based on Synesthesia" (Research project number: 24650083), 2012.4–2014.3.  
Role: Project leader, Budget: JPY3,000,000
9. JSPS Core-to-Core Program "Competitive Partnership on Cognitive Neuroscience Robotics," 2012.4–2017.3.  
Role: Principal investigator (Project leader: Minoru Asada), Budget: JPY5,000,000
10. Grant-in-Aid for Scientific Research (A) "Neural basis of working memory: Comparison between subconscious and under anesthesia" (Research project number: 23240036), 2011.4–2016.3.  
Role: Principal investigator (Project leader: Mariko Osaka), Budget: JPY1,200,000
11. Grant-in-Aid for Scientific Research (S) "Understanding and construction of developmental process from body-babbling to sociality acquisition" (Research project number: 22220002), 2010.4–2015.3.  
Role: Principal investigator (Project leader: Minoru Asada), Budget: JPY16,450,000

12. Research Grant provided by Research Institute for Cognition and Robotics, Bielefeld University "Designing Human-Robot Interaction based on / toward Understanding Parent-Infant Interaction," 2008–2011.  
Role: Project Leader, Budget: EUR39,300

### *Other Funds*

1. International Joint Research Promotion Program, Osaka University "Use of speech and motion cues for bootstrapping complex action learning in iCub," 2014.11–2015.3.  
Role: Project leader
2. Exciting Leading-Edge Research Projects, Osaka University "The Future of the Human Beings in the Age of Biosciences," 2010.8–2015.3.  
Role: Investigator (Project leader: Tatsuya Higaki)
3. Cluster of Excellence "Cognitive Interaction Technology," 2007–2012.  
Role: Responsible Investigator (Coordinator: Helge Ritter)

## **Scientific Activities**

### *Organizing Committee of Conferences*

1. General Co-Chair of the 5th International Conference on Human-Agent Interaction, 2017.
2. Publicity Co-Chair of the 7th Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2017.
3. Advisory Board of the 4th International Conference on Human-Agent Interaction, 2016.
4. General Co-Chair of the 11th ACM/IEEE International Conference on Human-Robot Interaction, 2016.
5. Workshops and Tutorials Co-Chair of the 2015 IEEE International Conference on Robotics and Automation, 2015.
6. Special Program Co-Chair of the 23rd IEEE International Symposium on Robot and Human Interactive Communication, 2014.
7. Publication Co-Chair of the 9th ACM/IEEE International Conference on Human-Robot Interaction, 2014.
8. General Chair of the 3rd Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2013.
9. Program Chair of the 2nd Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2012.
10. Publicity Chair of the 1st Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2011.
11. Registration Chair of the 5th ACM/IEEE International Conference on Human-Robot Interaction, 2010.
12. Communication Chair of the 4th IEEE International Conference on Development and Learning, 2005.

*Program Committee of Conferences*

1. Program Committee of the IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2011–2018.
2. Program Committee of the ACM/IEEE International Conference on Human-Robot Interaction, 2011–2018.
3. Program Committee of the IEEE-RAS International Conference on Humanoid Robots, 2012–2016.
4. Program Committee of the IEEE International Symposium on Robot and Human Interactive Communication, 2016–2018.
5. Program Committee of the IEEE/RSJ International Conference on Intelligent Robots and Systems, 2017.
6. Program Committee of the HRI Pioneers Workshop, 2012–2016.
7. Program Committee of the RO-MAN2015-WS “Emotion for Social Robotics,” 2015.
8. Program Committee of the Annual Meeting of the Cognitive Science Society, 2015.
9. Program Committee of the 1st International Workshop on Emotion for Sociable Agents, 2014.
10. Program Committee of the International Joint Workshop on Advanced Sensing / Visual Attention and Interaction, 2013.
11. Program Committee of the IROS2012-WS “Human Behavior Understanding,” 2012.
12. Program Committee of the WCCI2012 Special Session “Bio-Inspired Developmental Mechanisms,” 2012.
13. Program Committee of the IEEE International Conference on Development and Learning, 2006–2010.
14. Program Committee of the International Conference/Workshop on Epigenetic Robotics, 2005–2010.
15. Program Committee of the HAI (Human-Agent Interaction) Symposium, 2011–2012.
16. Program Committee of the International Workshop on Gaze Sensing and Interactions, 2010.
17. Program Committee of the 3rd International Conference on Human System Interaction, 2010.
18. Program Committee of the International Workshop on Robotics for Young Researchers, 2009.
19. Program Committee of the 4th International Symposium on Imitation in Animals and Artifacts, 2007.
20. Program Committee of the 2006 Robotics: Science and Systems Conference, 2006.

*Miscellaneous*

1. Special Issues Editor for Journal of Human-Robot Interaction, 2017–now.
2. Vice Chair of Autonomous Mental Development Technical Committee, Computational Intelligence Society of IEEE, 2012–now.
3. IEEE CIS Technical Committee on Autonomous Mental Development, 2011–now.
4. IEEE RAS Technical Committee on Cognitive Robotics, 2014–now.
5. Steering Committee of Human-Robot Interaction, 2014–now.
6. Review Editor of Frontiers in Neurorobotics, 2011–now.
7. Review Editor of Frontiers in Robotics and AI: Humanoid Robotics, 2014–now.
8. Scientific and Usage Advisory Board for EARS (Embodied Audition for RobotS) project, 2014–now.

9. Organizer of the HAI2017 Workshop on “Representation learning for human and robot cognition,” 2017.
10. Organizer of the IROS2016 Workshop on “Bio-inspired Social Robot Learning in Home Scenarios,” 2016.
11. Organizer of the ICAR2015 Workshop on “Robot Learning: Bottom-up and top-down development of robot skills,” 2015.
12. Organizer of the HRI2015 Workshop on “Cognition: A Bridge between Robotics and Interaction,” 2015.
13. Organizer of the HRI2014 Workshop on “HRI: a bridge between Robotics and Neuroscience,” 2014.
14. Organizer of the IJCNN2014 Special Session “Cognition and Development,” 2014.
15. Organizer of the ICDL-EpiRob2013 Special Session “Constructive Developmental Science: Two Endeavors toward Understanding Human Development,” 2013.
16. Organizer of the Humanoids2012 Workshop on “Can developmental robotics yield human-like cognitive abilities?,” 2012.
17. Organizer of the Workshop on Robot Anthropology, 2012.
18. Organizer of the IROS Workshop on “Cognitive Neuroscience Robotics,” 2011–2013.
19. Organizer of the Bielefeld-Osaka Workshop on Cognition and Robotics, 2011.
20. Organizer of the ICDL-EpiRob2011 Special Session “How can human scaffolding support robots learning?,” 2011.
21. Organizer of the HRI2011 Workshop on “The role of expectations in intuitive human-robot interaction,” 2011.
22. Organizer of the Bielefeld-Osaka Workshop, 2010.

## Educational Activities

### *Lectures*

- Medical and Engineering Science, 2011–present.
- Constructive Approaches to Intelligent Systems, 2013–present.
- Synthetic Approach to Human Understanding, 2010–2013.
- Brush-up School, 2010–2013.
- Starting School, 2010–2013.

### *Supervision*

- Takato Horii (2011–present; ME, Ph.D)
- Jorge Luis Copete (2013–present; ME, Ph.D)
- Jyh-Jong Hsieh (2015–present; Ph.D)
- Kyoichiro Kobayashi (2017–present; ME)
- Niyati Rawal (2017–2018; BE)
- Jimmy Baraglia (2012–2016; Ph.D)
- Takahiro Kuroki (2013–2014; ME)

Shibo Qin (2012–2014; BE, ME)

Takakazu Moriwaki (2012–2013; ME)

Yuji Oshima (2012–2013; ME)

Ryuhei Sumita (2012–2013; ME)

Yuki Fukushima (2010–2012; BE, ME)

Yuji Kawai (2010–2012; BE, ME)

Ryo Chohata (2010–2011; ME)

Hiroki Komatsu (2010–2011; ME)

Akiko Nakatani (2009–2011; BE, ME)

Go Tanaka (2009–2011; BE, ME)

Hiroataka Kimura (2010; BE)

## Skills

Languages: Japanese (native), English (fluent), German (good knowledge)

Computers: Mac OS/Linux/Windows, C/C++, OpenCV, OpenGL, R, Latex

Last updated: May 18, 2018

<http://developmental-robotics.jp/en/>