東京大学国際高等研究所 ニューロインテリジェンス国際研究機構 特任教授

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職歷

2019年4月-現在 東京大学国際高等研究所ニューロインテリジェンス国際研究機構 特任教授 大阪大学大学院工学研究科 招へい准教授兼任 2018年4月-2019年3月 情報通信研究機構脳情報通信融合研究センター 主任研究員 2017年5月-2019年3月 ビーレフェルト大学認知インタラクション技術研究拠点 客員教授兼任 2017年1月-2018年12月 2009年10月-2017年4月 大阪大学大学院工学研究科 特任准教授 2009 年 10 月-2016 年 12 月 ビーレフェルト大学認知インタラクション技術研究拠点 客員研究員兼任 2015年4月-2015年9月 京都工芸繊維大学大学院工芸科学研究科 非常勤講師兼任 ビーレフェルト大学認知ロボティクス研究所 ポスドク研究員 2008年2月-2009年9月 ビーレフェルト大学テクノロジー学科 ポスドク研究員 2006年4月-2008年1月 2004年4月-2006年3月 情報通信研究機構けいはんな情報通信融合研究センター 専攻研究員 2003年12月-2004年3月 東京農工大学工学部 非常勤講師兼任 大阪大学大学院工学研究科 産学官連携研究員 2002年11月-2004年3月

学歷

2004年3月 大阪大学博士(工学)取得

論文題目: Understanding the Development of Joint Attention from a Viewpoint of Cognitive Developmental Robotics

論文審查委員:浅田稔 教授(主查),石黒浩 教授,白井良明 教授

2002年10月 大阪大学大学院工学研究科知能・機能創成工学専攻博士後期課程単位取得退学

指導教員:浅田稔 教授

1999年3月 青山学院大学大学院理工学研究科機械工学専攻博士前期課程修了修士(工学)取得

論文題目:作業対象物に関する計画を優先した協調作業計画アルゴリズムの構築-建築作業への応用-

指導教員:富山健 教授

1997年3月 青山学院大学理工学部機械工学科卒業 学士(工学)取得

論文題目:複数台ロボットによる協調作業のための階層型分散システムの提案ー搬送作業シ

ミュレータへの適用ー 指導教員:富山健 教授

1993年3月 群馬県立高崎女子高等学校普通科卒業

所属学会

IEEE

日本ロボット学会

日本認知科学会

受賞歷

[1] Best Student Paper Award of the 5th International Conference on Human-Agent Interaction, 2017 年 10 月.

- [2] 第30回人工知能学会全国大会全国大会優秀賞,2017年5月.
- [3] Babybot Challenge 1st Place Award of the 5th IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2015 年 8 月.
- [4] ロボカップジャパンオープン 2015 人工知能学会賞, 2015 年 5 月.
- [5] 日本認知科学会第 31 回大会 大会発表賞, 2014 年 11 月.
- [6] 大阪大学総長顕彰, 2014年7月.
- [7] Best Paper Research Award of the RAAD Workshop: Robotics in Alpe-Adria-Danube Region, 2013 年 9 月.
- [8] 大阪大学総長顕彰, 2013年8月.
- [9] 人工知能学会研究会優秀賞, 2013年6月.
- [10] ロボカップジャパンオープン 2013 ロボカップ研究賞, 2013 年 5 月.
- [11] Best Paper Award Finalist of the 16th Annual RoboCup International Symposium, 2012 年 6 月.
- [12] 日本赤ちゃん学会第 12 回学術集会 最優秀ポスター発表賞, 2012 年 6 月.
- [13] ロボカップジャパンオープン 2012 人工知能学会賞, 2012 年 5 月.
- [14] Best Paper Award Finalist of the 16th IEEE International Symposium on Robot and Human Interactive Communication, 2008 年 8 月.
- [15] 日本認知科学会第 22 回大会 大会発表賞, 2005 年 7 月.

学会活動

国際・国内会議実行委員会

- [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.
- [13] 日本発達神経科学学会第6回学術集会 大会長, 2017.

国際・国内会議プログラム委員会

- [1] Program Committee of the IEEE International Conference on Development and Learning and on Epigenetic Robotics, 2011—now.
- [2] Program Committee of the ACM/IEEE International Conference on Human-Robot Interaction, 2011–now.
- [3] Program Committee of the IEEE International Symposium on Robot and Human Interactive Communication, 2016-now.
- [4] Program Committee of the IEEE-RAS International Conference on Humanoid Robots, 2012-2016.
- [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.

その他

- [1] Special Issues Editor for ACM Transactions on 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] Steering Committee of Human-Agent Interaction, 2016–2018.
- [7] Review Editor of Frontiers in Neurorobotics, 2011–now.
- [8] Review Editor of Frontiers in Robotics and AI: Humanoid Robotics, 2014–now.
- [9] Scientific Organizing Committee and Local Organizing Committee of ISSA Summer School, 2017.
- [10] Scientific and Usage Advisory Board for EARS (Embodied Audition for RobotS) project, 2014–now.
- [11] Organizer of the ICDL-EpiRob2018 Workshop on "Understanding Developmental Disorders: From Computational Models to Assistive Technology," 2018.
- [12] Organizer of the HAI2017 Workshop on "Representation learning for human and robot cognition," 2017.
- [13] Organizer of the IROS2016 Workshop on "Bio-inspired Social Robot Learning in Home Scenarios," 2016.
- [14] Organizer of the ICAR2015 Workshop on "Robot Learning: Bottom-up and top-down development of robot skills," 2015.
- [15] Organizer of the HRI2015 Workshop on "Cognition: A Bridge between Robotics and Interaction," 2015.
- [16] Organizer of the HRI2014 Workshop on "HRI: a bridge between Robotics and Neuroscience," 2014.
- [17] Organizer of the IJCNN2014 Special Session "Cognition and Development," 2014.
- [18] Organizer of the ICDL-EpiRob2013 Special Session "Constructive Developmental Science: Two Endeavors toward Understanding Human Development," 2013.

[19] Organizer of the Humanoids2012 Workshop on "Can developmental robotics yield human-like cognitive abilities?," 2012.

- [20] Organizer of the Workshop on Robot Anthropology, 2012.
- [21] Organizer of the IROS Workshop on "Cognitive Neuroscience Robotics," 2011–2013.
- [22] Organizer of the Bielefeld-Osaka Workshop on Cognition and Robotics, 2011.
- [23] Organizer of the ICDL-EpiRob2011 Special Session "How can human scaffolding support robots learning?," 2011.
- [24] Organizer of the HRI2011 Workshop on "The role of expectations in intuitive human-robot interaction," 2011.
- [25] Organizer of the Bielefeld-Osaka Workshop, 2010.
- [26] 日本発達神経科学学会 理事, 2017-now.
- [27] 脳と心のメカニズム 計画委員, 2017-now.
- [28] 日本ロボット学会展開セッション「GCOE 認知脳理解に基づく未来工学創成」オーガナイザ, 2010-2013.
- [29] 日本ロボット学会展開セッション「構成論的発達科学一胎児からの発達原理の解明に基づく発達障害のシステム的理解一」オーガナイザ、2013.
- [30] 日本赤ちゃん学会第13回学術集会シンポジウム「構成(論)的発達科学の新展開」オーガナイザ, 2013.

競争的資金

研究代表者

- [1] 戦略的創造研究推進事業(CREST)"認知ミラーリング:認知過程の自己理解と社会的共有による発達 障害者支援"(課題番号: JPMJCR16E2), 2016 年 12 月-2022 年 3 月. 役割: 代表, 研究経費: 139,600,000 円(総額 300,000,000 円)
- [2] 科学研究費補助金及び学術研究助成基金助成金 若手研究 (A) "発達的制約を利用した自他認知からの心の理論の獲得:構成的手法による研究"(研究課題番号:25700027), 2013 年 4 月-2016 年 3 月. 役割:代表, 研究経費:18,800,000 円
- [3] 科学研究費補助金 新学術領域研究(研究領域提案型)(計画研究)"社会的認知発達モデルとそれに基づく発達障害者支援システム構成論"(研究課題番号:24119003),2012 年 6 月-2017 年 3 月. 役割:代表,研究経費:85,300,000 円(総額 191,700,000 円)
- [4] 学術研究助成基金助成金 挑戦的萌芽研究 "共感覚を利用したマルチモーダルな情動抽出" (研究課題番号:24650083), 2012 年 4 月-2014 年 3 月. 役割:代表, 研究経費:3,000,000 円
- [5] 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 (total: EUR39,300)

研究分担者

- [1] 科学研究費補助金 基盤研究 (A) "ヘッドマウントディスプレイを用いた視知覚矯正・補助フレームワークの構築"(研究課題番号:18H04116), 2018 年 4 月-2022 年 3 月. 役割:分担(代表:清川清), 研究経費:8,600,000 円
- [2] 革新的イノベーション創出プログラム(COI STREAM)(サテライト)"脳の個性を生かした子どもの健やかなこころの育成:特異から得意へのパラダイムシフト," 2014 年 4 月-2022 年 3 月. 役割:分担(代表:三邉義雄), 研究経費:12,308,000 円

[3] 科学研究費補助金 新学術領域研究(研究領域提案型)(総括班)"構成論的発達科学 一胎児からの発達原理の解明に基づく発達障害のシステム的理解一"(研究課題番号:24119001),2012年6月-2017年3月. 役割:分担(代表:國吉康夫)、研究経費:3,460,000円

- [4] 科学研究費補助金 特別推進研究"神経ダイナミクスから社会的相互作用に至る過程の理解と構築による構成的発達科学"(研究課題番号:24000012),2012年5月-2017年3月.
 - 役割:分担(代表:浅田稔), 研究経費: 8,500,000 円
- [5] JSPS 研究拠点形成事業 -A. 先端拠点形成型-"認知脳理解に基づく未来工学創成のための競創的パートナーシップ," 2012 年 4 月-2017 年 3 月.

役割:分担(代表:浅田稔),研究経費:5,000,000円

- [6] 科学研究費補助金 基盤研究 (A) "非意識下プロセスにおけるワーキングメモリの脳内機構:意識下と麻酔下との比較" (研究課題番号:23240036), 2011 年 4 月-2016 年 3 月. 役割:分担(代表:苧阪満里子), 研究経費:1,200,000 円
- [7] 科学研究費補助金 基盤研究 (S) "構成的手法による身体バブリングから社会性獲得にいたる発達過程の理解と構築" (研究課題番号:22220002), 2010 年 4 月-2015 年 3 月(特別推進研究に移行のため 2012 年 6 月終了).

役割:分担(代表:浅田稔),研究経費:16,450,000円

学会発表・論文

研究業績の最新リスト: http://developmental-robotics.jp/publications/

Google Scholar: https://scholar.google.co.jp/citations?user=HqTUx7YAAAAJ&hl=en (Citations: 1382, h-index: 19, i10-index: 37)

原著論文

- [1] Fabio Vannucci, Alessandra Sciutti, Hagen Lehmann, Giulio Sandini, **Yukie Nagai**, and Francesco Rea, "Cultural differences in speed adaptation in human-robot interaction tasks," Paladyn. Journal of Behavioral Robotics, accepted.
- [2] Yuji Kawai, Yuji Oshima, Yuki Sasamoto, **Yukie Nagai**, and Minoru Asada, "A Computational Model for Child Inferences of Word Meanings via Syntactic Categories for Different Ages and Languages," IEEE Transactions on Cognitive and Developmental Systems, online available.
- [3] Mert Imre, Erhan Oztop, **Yukie Nagai**, and Emre Ugur, "Affordance-based altruistic robotic architecture for human-robot collaboration," Adaptive Behavior, vol. 27, no. 4, pp. 223-241, August 2019.
- [4] Beata J. Grzyb, **Yukie Nagai**, Minoru Asada, Allegra Cattani, Caroline Floccia, and Angelo Cangelosi, "Children's scale errors are a natural consequence of learning to associate objects with actions: A computational model," Developmental Science, vol. 22, no. 4, e12777, July 2019.
- [5] Sho Aoki, Kuriko Kagitani-Shimono, Junko Matsuzaki, Ryuzo Hanaie, Mariko Nakanishi, Koji Tominaga, **Yukie Nagai**, Ikuko Mohri, and Masako Taniike, "Lesser suppression of response to bright visual stimuli and visual abnormality in children with autism spectrum disorder: a magnetoencephalographic study," Journal of Neurodevelopmental Disorders, vol. 11, no. 9, June 2019.
- [6] Yukie Nagai, "Predictive learning: its key role in early cognitive development," Philosophical Transactions of the Royal Society B: Biological Sciences, vol. 374, no. 1771, March 2019.
- [7] 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, vol. 10, no. 3, pp. 762-75S, September 2018.
- [8] Jun-Cheol Park, Dae-Shik Kim, and Yukie Nagai, "Learning for Goal-Directed Actions Using RN-NPB: Developmental Change of "What to Imitate"," IEEE Transactions on Cognitive and Developmental Systems, vol. 10, no. 3, pp. 545-556, September 2018.

[9] Francisco Cruz, Sven Magg, Yukie Nagai, and Stefan Wermter, "Improving interactive reinforcement learning: What makes a good teacher?," Connection Science, vol. 30, no. 3, pp. 306-325, September 2018.

- [10] 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, vol. 10, no. 2, pp. 237-249, June 2018.
- [11] 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.
- [12] 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.
- [13] 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.
- [14] 長井志江, "認知発達の原理を探る:感覚・運動情報の予測学習に基づく計算論的モデル," ベビーサイエンス, vol. 15, pp. 22-32, 2016 年 3 月.
 長井志江, "【回答】認知発達の原理を探る:感覚・運動情報の予測学習に基づく計算論的モデル," ベビーサイエンス, vol. 15, pp. 37-45, 2016 年 3 月.
- [15] 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.
- [16] 河合祐司, 大嶋悠司, 笹本勇輝, 長井志江, 浅田稔, "幼児の統語発達モデル: 日本語, 英語, 中国語の言語 構造を反映した統語範疇の獲得過程," 認知科学, vol. 22, no. 3, pp. 475-479, 2015 年 9 月.
- [17] 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.
- [18] 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.
- [19] 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.
- [20] 長井志江, "ポピュレーション符号化を利用した自他の動き等価性の早期発見による共同注意の学習," 日本ロボット学会誌, vol. 25, no. 5, pp. 727-737, 2007 年 7 月.
- [21] 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.
- [22] 長井志江, "共同注意発達における動き情報の役割: 構成論的理解," 認知科学, vol. 13, no. 3, pp. 480-483, 2006 年 9 月.
- [23] 長井志江, 細田耕, 森田章生, 浅田稔, "視覚注視と自己評価型学習の機能に基づくブートストラップ学習を通した共同注意の創発," 人工知能学会論文誌, vol. 19, no. 1, pp. 10-19, 2004 年 1 月.
- [24] 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.
- [25] 細田耕, 長井志江, 浅田稔, "共同注意発現のためのブートストラップ," 電子情報通信学会技術研究報告: ニューロコンピューティング, vol. 103, no. 392, pp. 25-30, 2003 年 10 月.
- [26] 長井志江, 浅田稔, 細田耕, "ロボットと養育者の相互作用に基づく発達的学習モデルによる共同注意の獲得," 人工知能学会論文誌, vol. 18, no. 2, pp. 122-130, 2003 年 3 月.

解説・総説

[1] Yukie Nagai, "Developmental vs. evolutionary origin of cooperation," ベビーサイエンス, vol. 18, pp. 12-13, 2019 年 3 月.

- [2] 長井志江, "理解から支援へ:発達障害を見える化する認知ミラーリング," ヒューマンインタフェース学会誌, vol. 21, no. 1, pp. 5-10, 2019 年 2 月.
- [3] 長井志江, "ASD 視覚体験シミュレータ ~当事者視点から理解する自閉スペクトラム症の困難さ~," 特別支援教育研究, no. 734, pp. 23-25, 2018 年 10 月.
- [4] 國吉康夫, 長井志江, 小西行郎, 明和政子, 熊谷晋一郎, 大村吉幸, 金沢星慶, "構成論的発達科学ー胎児からの発達原理の解明に基づく発達障害のシステム的理解ー," ベビーサイエンス, vol. 17, pp. 10-21, 2018年3月.
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