

Sebastian S. Rodriguez, Ph.D.

Curriculum Vitae

Software and XR Engineer
Ph.D. in Computer Science
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RESEARCH INTERESTS

Human-automation/AI interaction, virtual and extended reality, interaction methodology, game design and development, human factors, cognitive science

EDUCATION

- 2016 – 2022 **University of Illinois at Urbana-Champaign**, Urbana, IL
Doctor of Philosophy (Ph.D.) in Computer Science, conc. in Human-Computer Interaction
Advisor: Alex Kirlik, Ph.D.
Dissertation: “Good Enough” Agents: Investigating Designed Imperfections in Human-AI Teams Across Parallel Domains
- 2012 – 2016 **Northwestern University**, Evanston, IL
Bachelor of Science (B.S.) in Computer Engineering

EXPERIENCE

- 2024 – Present **Amazon**, Redmond, WA
Software Development Engineer
Engineering and scaling for Project Kuiper.
- 2022 – 2023 **Meta**, Menlo Park, CA
Analytics Engineer
Provided quantitative engineering, data-driven decisions, and large-scale inference pipelines for privacy-aware infrastructure supporting Meta's products.
- 2021 – 2022 **University of Illinois at Urbana-Champaign**, Urbana, IL
Lead Software Developer
Led a team of 8 developers to maintain a sandbox game for simulated IoT devices, including architecting, implementing, testing, reviewing, and mentoring.
- 2016 – 2022 **University of Illinois at Urbana-Champaign**, Urbana, IL
Graduate Researcher (Advisor: Alex Kirlik, Ph.D.)
Developed game and VR experiences to research trust between humans and automation, and additional collaborations [C-7, 8, 9].
- 2021 **Meta**, Menlo Park, CA
Quantitative UX Research Intern (Host: Daniel Gruner)
Influenced early design decisions of Messenger through large-scale quantitative surveys and data analytics.

- 2018 – 2020 **U.S. DEVCOM Army Research Laboratory**, Aberdeen, MD
Research Fellow (Advisors: Derrik Asher, Ph.D. and Erin Zaroukian, Ph.D.)
Investigated the effects of complacency and emergent collaboration in heterogeneous teams consisting of humans and autonomous agents **[C-2, 3, 4, 5, 6; J-2]**.
- 2018 **U.S. DEVCOM Army Research Laboratory**, Playa Vista, CA
Software Engineer Intern (Host: James Schaffer, Ph.D.)
Developed games and backend services to research the effects of complacency in knowledge and judgment for recommendation and game-based systems **[C-1]**.
- 2015 – 2016 **Northwestern University**, Evanston, IL
Undergraduate Research Assistant (Advisor: Corey Brady, Ph.D.)
Programmed hackable hardware for teaching network topology through participatory simulations in Chicago middle and high schools **[J-1]**.
- 2014 – 2016 **Northwestern University Information Technology**, Evanston, IL
Lead Helpdesk Analyst
Collaborated with a team of 16 to manage the daily student operations of Northwestern University's campus-wide IT department.
- 2015 **Washington State University**, Pullman, WA
Undergraduate Research Intern (Host: Anurag Srivastava, Ph.D.)
Implemented fault and failure detection algorithms for phasor measurement units in smart electric grids.

SKILLS

Programming	C#, C++, Python, R, JavaScript, TypeScript, PHP, Hack, C, Java, SQL
Frameworks	Unity, .NET, Oculus XR, Visual Studio, Selenium, Flask, pandas/NumPy, Jupyter, React, Node.js, Arduino, Processing, Hive, Spark, Presto, git, Mercurial, CI/CD, GitHub Actions, Travis CI, GameCI, NUnit, unittest, AWS, REST, BASH/Unix
Research	Machine learning/engineering, inferential/summary statistics, experiment design (traditional/AB), factor analysis, pathway modeling, user modeling, scientific writing, documentation
Languages	English (native), Spanish (native)

PEER-REVIEWED CONFERENCE PUBLICATIONS

- C-10 Validating Trust in Human-Robot Interaction through Virtual Reality: Comparing Embodied and "Behind-the-Screen" Interactions
Rodriguez S., Deep H., Asher D., Schaffer J., Kirlik A. (2023)
Applied Human Factors and Engineering (AHFE) International Conference Proceedings
- C-9 Towards Designing a Context-Aware Multimodal Voice Assistant for Pronoun Disambiguation: A Demonstration of GazePointAR
Lee J., Wang J., Brown E., Chu L., **Rodriguez S.**, Froelich J. (2023)
ACM Symposium on User Interface Software and Technology (UIST) Demo Proceedings
- C-8 RemoteLab: A VR Remote Study Toolkit
Lee J., Natarajan R., **Rodriguez S.**, Panda P., Ofek E. (2022)
ACM Symposium on User Interface Software and Technology (UIST) Proceedings

- C-7 What's This? A Voice and Touch Multimodal Approach for Ambiguity Resolution in Voice Assistants
Lee J., **Rodriguez S.**, Natarrajan R., Chen J., Deep H., Kirlik A. (2021)
International Conference on Multimodal Interaction (ICMI) Proceedings
- C-6 Emergent Heterogeneous Strategies from Homogeneous Capabilities in Multi-Agent Systems
Fernandez R., Zaroukian E., Humann J., Perelman B., Dorothy R., **Rodriguez S.**, Asher D. (2020)
World Congress in Computer Science, Computer Engineering, and Applied Computing (CSCE) Proceedings
- C-5 Multi-Agent Collaboration with Ergodic Spatial Distributions
Asher D., Zaroukian E., Perelman B., Perret J., Fernandez R., Hoffman B., **Rodriguez S.** (2020)
Society of Photo-Optical Instrumentation Engineers (SPIE) Defense + Commercial Sensing Proceedings
- C-4 Measuring Complacency in Humans Interacting with Autonomous Agents in a Multi-Agent System
Rodriguez S., Chen J., Deep H., Lee J., Asher D., and Zaroukian E. (2020)
Society of Photo-Optical Instrumentation Engineers (SPIE) Defense + Commercial Sensing Proceedings
- C-3 Multi-Agent Coordination Profiles Through State Space Perturbations
Asher D., Garber-Barron M., **Rodriguez S.**, Zaroukian E., and Waytowich N. (2019)
International Conference on Computational Science and Computational Intelligence (CSCI) Proceedings
- C-2 Algorithmically Identifying Strategies in Multi-Agent Game-Theoretic Environments
Zaroukian E., **Rodriguez S.**, Barton S., Schaffer J., Perelman B., Waytowich N., Hoffman B., and Asher D. (2019)
Society of Photo-Optical Instrumentation Engineers (SPIE) Defense + Commercial Sensing Proceedings
- C-1 Knowledge Complacency and Decision Support Systems **[Best Paper Award]**
Rodriguez S., Schaffer J., O'Donovan J., and Höllerer T. (2019)
Cognitive and Computational Aspects of Situation Management (CogSIMA) Proceedings

PEER-REVIEWED JOURNAL PUBLICATIONS

- J-2 Mediating Agent Reliability with Human Trust, Situation Awareness, and Performance in Autonomously-Collaborative Human-Agent Teams
Rodriguez S., Zaroukian E., Hoyer J., Asher D. (2022)
Journal of Cognitive Engineering and Decision Making, Special Issue on Human-Agent Teaming
- J-1 All Roads Lead to Computing: Making, Participatory Simulations, and Social Computing as Pathways to Computer Science
Brady C., Weintrop D., Anton G., Orton K., **Rodriguez S.**, and Wilensky U. (2016)
IEEE Transactions on Education

TEACHING EXPERIENCE

SP21	ENG 177: Spatial Visualization College of Engineering, University of Illinois at Urbana-Champaign
FA21	CS 225: Data Structures Department of Computer Science, University of Illinois at Urbana-Champaign
SP21	CS 565: Human-Computer Interaction Department of Computer Science, University of Illinois at Urbana-Champaign
FA20	CS 225: Data Structures Department of Computer Science, University of Illinois at Urbana-Champaign
SP20	CS 225: Data Structures Department of Computer Science, University of Illinois at Urbana-Champaign
SU20	CS 498: Data Visualization Department of Computer Science, University of Illinois at Urbana-Champaign
FA18	CS 498: Experimental Methods of Human Computer Interaction Department of Computer Science, University of Illinois at Urbana-Champaign
SP16	EECS 395: Tangible Interaction Design and Learning Department of Electrical Engineering and Computer Science, Northwestern University
WI16	EECS 330: Human Computer Interaction Department of Electrical Engineering and Computer Science, Northwestern University
FA15	EECS 111: Fundamentals of Computer Programming I Department of Electrical Engineering and Computer Science, Northwestern University
SP15	EECS 214: Data Structures and Data Management Department of Electrical Engineering and Computer Science, Northwestern University

MENTORING

2023	Jared Ignacio Alonzo Ohio State University B.S. in Computer Science and Engineering
2023	Sophia Sorensen San Jose State University B.S. in Computer Science, 2023 (next: Operations Manager @ Bizinta Inc.)
2022	Juan Sebastian Rodriguez Nova Southeastern University M.S. in Information Systems, 2022
2022	Gabriella Xue University of Illinois at Urbana-Champaign B.S./M.S. in Computer Science, 2023 (next: Ph.D. @ University of Illinois at Urbana-Champaign)
2022	Osamu Fujimoto Georgia Institute of Technology M.S. in Computer Science, 2023 (next: Software Engineer @ Venmo)
2021	Drshika Asher University of Illinois at Urbana-Champaign B.S. in Computer Science
2020	Sarah Shaw University of Illinois at Urbana-Champaign B.S. in Computer Science and Statistics, 2022
2020	Ziyuan Wei University of Illinois at Urbana-Champaign B.S./M.S. in Computer Science and Statistics, 2022 (next: Software Engineer @ Meta)
2019	Jaewook Lee University of Illinois at Urbana-Champaign B.S. in Computer Science, 2022 (next: Ph.D. @ University of Washington)

- 2019 **Jacqueline Chen**
University of Illinois at Urbana-Champaign B.S. in Computer Science, 2022
(next: Software Engineer @ Gap Inc.)
- 2019 **Harsh Deep**
University of Illinois at Urbana-Champaign B.S. in Computer Science and Statistics, 2022
(next: Software Engineer @ Modern Treasury)
- 2017 **Amber Zhang**
University of Illinois at Urbana-Champaign B.S. in Computer Science, 2018
(next: Software Engineer @ Pure Storage)
- 2017 **Wyatt McAllister**
University of Illinois at Urbana-Champaign M.S. in Electrical and Computer Engineering, 2018
(next: Ph.D. @ University of Illinois at Urbana-Champaign)
- 2017 **Ambika Dubey**
University of Illinois at Urbana-Champaign B.S. in Computer Science, 2018
(next: Software Engineer @ Microsoft)

AWARDS AND HONORS

- 2021 **ACM ICMI 2021 – Outstanding Review Award**
Recognized for an outstanding peer review for a conference submission
- 2021 **Illinois Scholars Undergraduate Research Program Mentor Funding**
UIUC grant to support an undergraduate research apprentice
- 2020 **Apple Scholars in AI/ML University Nomination**
Nominated by the Graduate College to represent UIUC at Apple's fellowship competition
- 2020 **Richard Tapia Celebration of Diversity in Computing Travel Grant**
UIUC travel grant to attend the 2020 Tapia Conference
- 2019 **U.S. Army CCDC Army Research Laboratory Journeyman Fellowship**
Prestigious 1-year fellowship to conduct dissertation research with ARL
- 2019 **IEEE CogSIMA 2019 – Best Paper Award**
Knowledge Complacency and Decision Support Systems [C-1]
- 2018 **UIUC Certificate of Recognition for Academic Excellence**
UIUC award for excellence in research, teaching, or service
- 2016 **UIUC Graduate College Distinguished Fellowship**
UIUC award to support graduate studies with 2 years of funding
- 2016 **Illinois Sloan Scholar, Alfred P. Sloan Foundation's Minority Ph.D. Program**
Merit-based award for incoming minority Ph.D. students

SERVICE

Reviewing	<i>Conferences (* denotes reviewing award)</i> <ul style="list-style-type: none">• UbiComp / ISWC 2023• HFES 2023• ICMI 2021*, 2022, 2023• MobileHCI 2022• IEEE VR 2021• CSCW 2021• CHI 2021• CHI PLAY 2019, 2020, 2021 <i>Journals</i> <ul style="list-style-type: none">• International Journal of Human-Computer Interaction• Human Factors and Ergonomics Society• Production and Operations Management
Development	Human Factors and Ergonomics Society, Member (2021 – 2022) UIUC Chapter Tau Beta Pi Engineering Honor Society, Member (2020 – 2022) Illinois Alpha Chapter Society of Hispanic Professional Engineers, Member (2016 – 2022) UIUC Chapter Society of Hispanic Professional Engineers, Internal Vice President (2015 – 2016) Society of Hispanic Professional Engineers, Member (2012 – 2015) NU Chapter
Education	UIUC Illinois Scholars Undergraduate Research Program 2021 UIUC Computer Science Graduate Ambassador 2016, 2017, 2018 Alfred P. Sloan UIUC Mentorship Program 2017
Planning	Alfred P. Sloan UIUC Mini-Conference 2019

Last updated: December 27, 2023