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

2022 – 2023 **Meta,** Menlo Park, CA
Analytics Engineer
Providing 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-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., Natarrajan 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 Peturbations
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., Hoye 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 **Sophia Sorensen**
San Jose State University B.S. in Computer Science, 2023

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 *Conferences (⋆ denotes reviewing award)*

- UbiComp / ISWC 2023
- HFES 2023
- ICMI 2021⋆, 2022, 2023
- MobileHCI 2022
- IEEE VR 2021
- CSCW 2021
- CHI 2021
- CHI PLAY 2019, 2020, 2021

Journals

- 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

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