SONIA RAYCHAUDHURI
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I am a Ph.D. candidate in Computer Science at Simon Fraser University, specializing in embodied AI, robotic semantic navigation, natural-language understanding, deep learning and reinforcement learning. My research focuses on pushing the boundaries of AI-driven autonomy, bridging vision, language, and spatial reasoning to enhance robotic intelligence.

During my internship at the Boston Dynamics AI Institute, I developed a novel natural-language grounded instruction-following method, demonstrating its zero-shot navigation capabilities on a real Spot robot. My work has been published in top-tier conferences, and I bring both academic rigor and industry experience, having previously worked as a Software Engineer, where I built a strong technical foundation in AI-driven systems.

I am passionate about advancing embodied AI by integrating cutting-edge techniques to develop intelligent, adaptable, and impactful robotic solutions.

PhD Advisor: Prof. Angel Chang
Affiliations: Simon Fraser University (3dlg-hcvc lab, GrUVi Lab)
Collaborators: Prof. Manolis Savva, Prof. Bernadette Bucher, Duy Ta, Unnat Jain & more
Skills: Reinforcement Learning, Deep Learning, Visual SLAM, Natural Language Understanding, Python, PyTorch

Keywords	embodied ai, semantic navigation, multi-object navigation, vision and language navigation, reinforcement learning, computer vision, robotic vision, robotic navigation, natural language understanding
Publications	Foundation Models for Vision-Language-Action (VLA) Reasoning (in progress) F. Taioli, S. Raychaudhuri, U. Jain, A. Chang Spatially-Aware Layered Mapping in Language-driven Multi-Object Navigation (in progress) S. Raychaudhuri, E. Cancelli, T. Campari, L. Ballan, M. Savva, A. Chang. Semantic Mapping in Indoor Embodied AI - A Comprehensive Survey and Future Directions | arxiv S. Raychaudhuri, A. X. Chang NL-SLAM for OC-VLN: Natural Language Grounded SLAM for Object-Centric VLN | arxiv | website (under review) S. Raychaudhuri, D. Ta, K. Ashton, A. X. Chang, J. Wang, B. Bucher R3DS: Reality-linked 3D Scenes for Panoramic Scene Understanding | ECCV 2024 | project Q. Wu, S. Raychaudhuri, D. Ritchie, M. Savva, A. Chang MOPA: Modular Object Navigation with PointGoal Agents | WACV 2024 | project | paper S. Raychaudhuri, T. Campari, U. Jain, M. Savva, A. Chang. Retrospectives on the Embodied AI Workshop | arXiv 2022 M. Deitke, D. Batra, Y. Bisk, T. Campari, A. Chang, D. Chaplot, et al.

Language-Aligned Waypoint (LAW) Supervision for Vision-and-Language Navigation in Continuous Environments | EMNLP 2021 | project
S. Raychaudhuri, S. Wani, S. Patel, U. Jain, A. Chang.

Motion Annotation Programs: A Scalable Approach to Annotating Kinematic Articulations in Large 3D Shape Collections | 3DV 2020 | project
X. Xu, D. Charatan, S. Raychaudhuri, H. Jiang, M. Heitmann, V. Kim, S. Chaudhuri, M. Savva, A. Chang, and D. Ritchie.

Teaching Experience

- Graduate Teaching Assistant, Natural Language Processing 2020,2021
- Graduate Teaching Assistant, Natural Language Understanding 2021

Academic Service / Peer Review

Organized workshops: co-hosted of MultiON challenge for Embodied AI Workshop at CVPR 2022, 2023, 2024.
Reviewed for international conferences - ICRA**,** IROS, RA-L, CVPR, ICCV, ACL ARR, CRV, WACV, TPAMI, SIGGRAPH, SIGGRAPH Asia, IJCV.
Organized student-led groups, mentored undergraduate and graduate students, organized several reading groups and research talks.

Awards / Recognition

- Outstanding TA Award by the CS SFU [2022]
- Amii AI Week Talent Bursary Recipient [2022]
- Selected for CRA-WP Grad Cohort for Women [2021, 2022]
- Graduate Fellowship, SFU [2019, 2021, 2022]
- Helmut & Hugo Eppich Family Graduate Scholarship, SFU [2021]

Education

- Ph.D. (Computer Science), Simon Fraser University, Canada (2020-present)
- Bachelor of Engineering (Information Technology), IIEST, India (2003-2007)

Industry Experience

- Boston Dynamics AI Institute, Research Intern (Jan-Jun 2024)
- Ericsson India Global Services Pvt. Ltd, Senior Software Engineer (2011–2019)
- Tata Consultancy Services Pvt. Ltd., India, Software Engineer (2007–2011)