Charan Pushpanathan Prabavathi

Ph.D. Student, School of Information Sciences
University of Illinois Urbana-Champaign

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Research Interests

Human-computer interaction; Learning sciences; Computer supported collaborative work; human-ai interaction

Education

University of Illinois Urbana-Champaign, IL 2025
Ph.D, Information Sciences
School of Information Sciences
Advisor: Micheal B. Twidale

Pennsylvania State University - University Park, State College, PA 2023 – 2025
Master of Science, Informatics
College of Information Sciences and Technology
Advisor: John M. Carroll

Kumaraguru College of Technology - Affl. Anna University, India 2019 – 2023
Bachelor of Engineering, Computer Science
Department of Computer Science and Engineering
Advisors: Latha. L and Kanagaraj. G

Academic Publications

[1] Lin, Y.-F., Li, X., Huang, W.-H., **Pushpanathan Prabavathi, Charan**, Cai, J., & Carroll, J. M. (2025). Parental collaboration and closeness: Envisioning with new couple parents. *DIS '25: Proceedings of the 2025 ACM Conference on Designing Interactive Systems.*

[2] **Pushpanathan Prabavathi, Charan**, Lin, Y.-F., & Carroll, J. M. (2025). A collaborative system to augment co-parenting closeness. *Manuscript in preparation.*

[3] Chona, H., Zhou, Y., Xu, P., Schulman, J. S. Jr., Wu, T. Y., Weng, C., Wu, S., **Pushpanathan Prabavathi, Charan** (2025). Trust and decision-making with explainable AI in immersive technologies: A systematic literature review. *Unpublished manuscript.*

Research Experience

Pennsylvania State University, State College, PA 2023 – 2025
Research Assistant with John M. Carroll
Collaboration Innovation Laboratory

Professional Experience

HDFC Bank Limited, India 11/2022 – 06/2023
Product Designer Intern

- Conducted benchmarking and field studies to guide interface redesigns for account aggregation, digital payments, and consumer services.
- Applied information architecture techniques to restructure user workflows, achieving a 93% UAT success rate for new banking systems.
- Explored innovation prototyping using assistive technology concepts, integrating user needs and contextual insights.

Angel Startup in Capital Market (Closed Startup), India 08/2022 – 10/2022
Founding Member and Designer

- Led user-centered design planning through concept testing, scenario creation, and iterative sketching for a social investing platform.
- Engaged in problem-space framing, wireframing, and usability-informed prototyping for investor-facing tools.
- Participated in early-stage research and design validation with co-founders before the venture was closed due to regulatory constraints.

Freecharge (backed by Axis Bank Limited), India 07/2021 – 01/2022
Product Designer Intern

- Conducted user interviews, usability testing, and A/B experiments for 20M+ users in Neo-banking and Pay-later feature flows.
- Designed and tested high-fidelity wireframes, PWAs, Cognitive walkthroughs, and account management tools through iterative research cycles.
- Recognized with a Tech Award for contributions to UX research and design effectiveness in high-scale emailer systems.

Teaching

Pennsylvania State University, College of Information Sciences and Technology
Assisted with: Xiaolong Luke Zhang
IST 505: Foundations of Research Design in Information Sciences and Technology
(Instructional Assistant, Spring 2025)
IST 526: Development Tools and Visualizations for Human-Computer Interaction
(Instructional Assistant, Spring 2025)
IST 402: Emerging Issues and Technology: Computer Graphics and Virtual Reality
(Instructional Assistant, Fall 2024)
IST 504: Foundations of Theories and Methods of Information Sciences and Technology Research
(Instructional Assistant, Fall 2024)

Selected Projects and Collaborations

Trust and Decision-Making with Explainable AI in XR – Literature Review Fall 2024
IST 597: Explainable AI, Jonathan Dodge

- Conducted a systematic literature review analyzing 89 papers on trust and decision-making in XR, identifying key mechanisms for explainability and user trust calibration.
- Developed a framework to evaluate explanation techniques in immersive interfaces, studying how visualization methods impact user understanding and trust.
- Investigated ethical implications of AI in XR, focusing on transparency, bias mitigation, and strategies for human-AI trust calibration.

Machine Learning and Reinforcement Learning – Course Project Fall 2024
IST 597: Explainable AI, Jonathan Dodge

- Designed and evaluated MDP agents using Q-learning, policy iteration, and deep Q-networks for sequential decision-making in high-stakes domains.
- Applied explainability methods (AIX360, LIME, SHAP) to visualize model decisions and identify feature importance.
- Explored fairness and bias mitigation via feature engineering and model interpretation in machine learning pipelines.

Natural Language Understanding – Course Project Fall 2024
IST 597: Human-Centered Artificial Intelligence, Syed Billah

- Built a GPT-2 based conversational AI agent using PEFT/LoRA and LangChain for logic-based semantic queries and real-time content understanding.
- Developed a multimodal chatbot integrating Whisper (speech), FastSpeech2 (TTS), and Stable Diffusion (image generation) via Hugging Face tools.
- Implemented reinforcement learning agents using MinWoB++ and WGE to automate UI tasks and study learning from demonstrations.

Post and Gather – Course Project Spring 2024
IST 521: HCI – User and Technology, Frank E. Ritter

- Conducted qualitative user research via in-depth interviews and thematic analysis to identify pain points in campus event management.
- Performed Hierarchical Task Analysis (HTA) to map 10 key workflows and restructure information architecture based on user behavior patterns.
- Applied iterative HCI methods—journey mapping, prototyping, and user testing—to design a platform serving all 24 Penn State campuses.

Reviewer

CHI LBW 2025

Invited Talks and Presentations

Persuasive Design: Influencing Billions of Mobile Users
Dept of CSE, Kumaraguru College of Technology, January 18, 2023
How to Present a Presentation – VC Pitches and Academia
Dept of CSE, Kumaraguru College of Technology, December 5, 2022

Test Scores

American English Oral Communicative Proficiency Test (AEOCPT)
Score: 293/300 — *Qualified for TA positions*
Department of Applied Linguistics, Pennsylvania State University, 2024

Resume Last Updated: 05/2025