

Shiwali Mohan

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[Webpages](#) | [Curriculum Vitae](#) | [Research Statement](#) | [Diversity Statement](#) | [Google Scholar](#)

EDUCATION

PHD, CSE - AI

UNIVERSITY OF MICHIGAN

2015 | Ann Arbor, MI

Thesis: From Verbs to Tasks - An Integrated Account of Learning Tasks from Situated Interactive Instruction [[pdf](#)]

MASTER OF SCIENCE

UNIVERSITY OF MICHIGAN

2009 | Ann Arbor, MI

BACHELOR OF ENGINEERING

UNIVERSITY OF DELHI

2007 | New Delhi, India

SKILLS

EXPERTISE

Hybrid AI Systems: **ML + KRR**

Human-Centered AI/ML

Human-Machine Interaction

Computational Cognitive Science

TOOLS

Programming: Python, Java, Objective C

Expert Systems: **Soar, CLIPS**

ML: PyTorch, TensorFlow

Statistics: R, Pandas, NumPy, SciPy

Visualization: Matplotlib, Seaborn

COMMUNICATION

Scientific articles: AI, HCI, HRI

Patent applications

Research/funding proposals

Government stakeholder management

SERVICE

ADVISING

Preeti Ramaraj, UM

Will Hancock, Northwestern

COMMUNITY

Chair: ACS, AAAI-DC

SPC/PC: AAAI, IJCAI, ACM: IUI, HRI,

UpiComp, ICRA, IEEE RO-MAN

Reviewer: ACM TiiS, Autonomous Robots

MEDIA

INVITED TALKS

Tech & Society @ CUNY/UCB

Robotics Colloquium @ UW

MLUX

ACM IUI 2021

PRESS

IEEE Spectrum, 2021. [[link](#)]

Outside Magazine, 2017. [[link](#)]

EMPLOYMENT

XEROX PARC | INTELLIGENT SYSTEMS LAB

Principal Scientist

2022 – Current | Palo Alto, CA

Senior Member of Research Staff

2019 – 2022 | Palo Alto, CA

Principal Investigator, DARPA SAIL-ON

\$4M, 2019-2023

- Leading research on design of intelligent systems that are robust to post-deployment novelties and domain shifts.
- Demonstrated that a hybrid AI system with model-based and machine learned components can adapt quickly to changes introduced in the environment during deployment.
- Managing a inter-disciplinary team of 7 at Xerox PARC, UPenn, and Ben Gurion University. Providing leadership in program-wide evaluation efforts.

Principal Investigator, DARPA GAILA

\$1.7M, 2019-2022

- Leading research on embodied natural language processing (ELP) for robots
- Developing a neuro-cognitive architecture implementing CV, spatial reasoning, goal-oriented task management, inverse kinematics, analogical reasoning & generalization, natural language processing (NLP), and dialog management.
- Managing an inter-disciplinary team of 4 at Xerox PARC.
- Created a patent (pending) portfolio for embodied language processing.

Member of Research Staff

2015 - 2019 | Palo Alto, CA

- Proposed and integrated social science models in AI & ML systems. Prototyped novel human-computer interaction patterns. Conducted human participant studies for impact evaluation.
- **Health behavior change:** implemented AI scheduling algorithms for coaching leveraging cognitive theory of behavior change, evaluated impact through longitudinal, ecological human-participant studies.
- **Sustainable transportation:** extended multi-modal planning to incorporate user preferences estimated via a rational choice model, evaluated model through stated choice surveys, analyzed energy conservation using agent-based models.

YAHOO! | BUSINESS INTELLIGENCE

Software Engineer

2007 - 2008 | Bangalore, India

SELECTED PUBLICATIONS

12 journal articles | 2 book chapters | 16 conference publications | 9 patents pending or granted

- **Shiwali Mohan.** Exploring the Role of Common Model of Cognition in Designing Adaptive Coaching Interactions for Health Behavior Change. ACM Transactions on Interactive Intelligent Systems. 2021. **cs.AI, cs.CY, cs.HC**
- Preeti Ramaraj, Charles Ortiz, **Shiwali Mohan.** Unpacking Human Teachers' Intentions for Natural Interactive Task Learning. IEEE International Conference on Robots & Human Interactive Communication 2021. **cs.RO, cs.HC**
- **Shiwali Mohan**, Matt Klenk, Matthew Shreve, Aaron Ang, Kent Evans, John Maxwell. Characterizing an Analogical Concept Memory for Architectures Implementing the Common Model of Cognition. Advances in Cognitive Systems. 2020. **cs.AI, cs.HC, cs.RO, cs.SC**
- **Shiwali Mohan**, Anusha Venkatakrishnan, Andrea Hartzler. Designing an AI Health Coach and Studying its Utility in Promoting Regular Aerobic Exercise. ACM Transactions on Interactive Intelligent Systems. 2020. **cs.AI, cs.HC**
- **Shiwali Mohan**, Hesham Rakha, Matthew Klenk. Acceptable Planning: Influencing Individual Behavior to Reduce Transportation Energy Expenditure of a City <https://preetiramaraj.github.io/>. Journal of Artificial Intelligence Research. 2019. **cs.AI, cs.CY, cs.HC, cs.LG**
- John Laird and **Shiwali Mohan.** Learning Fast and Slow: Levels of Learning in General Autonomous Intelligent Agents. In Proceedings of the 32nd AAAI Conference on Artificial Intelligence. AAAI 2018. **Blue Sky Award**