Negar Kamali

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RESEARCH INTERESTS

• Behavioral Science of Human-AI Collaboration • AI-Assisted Decision Making • Mechanistic Interpretability • AI Alignment

EDUCATION

Ph.D. in Computer Science *2022-present* — Northwestern University
Evanston, IL, USA

Ph.D. in Computational Mechanics *2013-2018* — University of Illinois at Chicago
Chicago, IL, USA

M. Sc. in Computational Mechanics *2010-2013* — University of Tehran
Tehran, Iran

B.Sc. in Civil Engineering *2006-2010* — Tabriz University
Tabriz, Iran

HONORS & AWARDS

Northwestern University | *Cognitive Science Advanced Research Fellowship* 2024

Northwestern University | *ACM CHI Best Paper Honorable Mention* 2024

Northwestern University | *Todd M. and Ruth Warren and the Chookaszian Family Fellowship* 2022 & 2023

Univ. of Illinois, Chicago | *Chancellor's Student Service and Leadership Award* 2017

Univ. of Illinois, Chicago | *Excellence in Undergraduate Mentoring Scholarship* 2017

Univ. of Illinois, Chicago | *Chicago Consular Corps of Engineers Scholarship* 2017

Univ. of Illinois, Chicago | *UIC Presenter Award* 2016

Univ. of Illinois, Chicago | *Graduate Student Council UIC Award* 2016

PUBLICATIONS, PRESENTATIONS, AND PRESS

Working Papers

- *Enhancing Human Detection of Deepfakes with LLM and Expert Guidance*
  - **Related ACM CHI Paper:**
    "Characterizing Photorealism and Artifacts in Diffusion Model-Generated Images" **N. Kamali**, K. Nakamura, A. Kumar, A. Chatzimparmpas, J. Hullman, M. Groh *ACM CHI Conference on Human Factors in Computing Systems*, Yokohama, Japan, 2025
  - **Related Preprint:**
    "How to Distinguish AI-Generated Images from Authentic Photographs" **N. Kamali**, K. Nakamura, A. Chatzimparmpas, J. Hullman, M. Groh Available on *arXiv*, 2024

Conference Proceedings

- "Generative AI Literacy Training Enhances Detection Accuracy For Intelligence Analysts", **N. Kamali**, C. R. Gerstner, J. Hullman, M. Groh, *Under review at ICWSM 2026*
- "Characterizing Photorealism and Artifacts in Diffusion Model-Generated Images", **N. Kamali**, K. Nakamura, A. Kumar, A. Chatzimparmpas, J. Hullman, M. Groh *ACM CHI Conference on Human Factors in Computing Systems, Yokohama, Japan,* 2025

- "Patients' Expectations of ML-driven JITAI Support for Maternal Stress Management", M. Ulloa, **N. Kamali**, G. Fernandes, E. Soyemi, M. Beltzer, N. Alshurafa, M. Jacobs, *Under review for ACM Transactions on Computing for Healthcare,* 2025
- "Evaluating the Utility of Conformal Prediction Sets for AI-Advised Image Labeling", D. Zhang, A. Chatzimparmpas, **N. Kamali**, J. Hullman, *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems,* 2024
  - Best Paper Honorable Mention Award

Invited Talks & Panels

- **AI Literacy Initiative** (Invited Speaker), *Center for Media Engagement, University of Texas at Austin, Austin, TX, April 2026.*
- **AI and Disinformation Summit** (Panelist, By Invitation), *Center for Informed Democracy and Social Cybersecurity, Carnegie Mellon University, Pittsburgh, PA, January 2025.*
- **Laboratory for Analytical Science 2024 Research Symposium** (Invited Speaker), *North Carolina State University, Raleigh, NC, December 2024.*

Presentations

- "Generative AI Literacy Training Enhances Detection Accuracy Among Government Analysts", **N. Kamali**, M. Groh, *CODE@MIT, Cambridge,USA* 2025
- "Evaluating Human Perception of AI-Generated Images", **N. Kamali**, A. Chatzimparmpas, J. Hullman, M. Groh, *IC2S2, Philadelphia,USA* 2024
- "Co-Designing Patient-Facing Machine Learning for Prenatal Stress Reduction", M. Ulloa, **N. Kamali**, G. Fernandes, E. Soyemi, M. Beltzer, B. Kaveladze, N. Alshurafa, M. Jacobs, *ISRII, Ireland,* 2024
- "Evaluating the Utility of Conformal Prediction Sets for AI-Advised Image Labeling", D. Zhang, A. Chatzimparmpas, **N. Kamali**, J. Hullman, *Human+AI Symposium at the University of Chicago, Chicago, USA* 2023

Workshops

- "Co-Designing Patient-Facing Machine Learning for Prenatal Stress Reduction", M. Ulloa, **N. Kamali**, G. Fernandes, E. Soyemi, M. Beltzer, B. Kaveladze, N. Alshurafa, M. Jacobs, *Workshop presentation at the 2024 CSCW Conference on Computer-Supported Cooperative Work and Social Computing, Minneapolis, MN,* 2024

Journal Publications

- "Harmonic-enriched reproducing kernel approximation for highly oscillatory differential equations", A. Mahdavi, Sh. W. Chi, **N. Kamali**, *ASCE's Journal of Engineering Mechanics,* 2020
- "Influence of Mesoscale and Macroscale Heterogeneities in Higher Harmonics Under Plastic Deformation", **N. Kamali**, N. Tehrani, A. Mostavi, Sh. W. Chi, D. Ozevin, J.E. Indecochea, *Journal of Non-destructive Evaluation,* 2019
- "Numerical study on how heterogeneity affects ultrasound higher harmonics generation", **N. Kamali**,A. Mahdavi, Sh. W. Chi, *Nondestructive Testing and Evaluating,* 2019
- "Wavelet Based Harmonics Decomposition of Ultrasonic Signal in Assessment of Plastic Strain in Aluminium", A. Mostavi, **N. Kamali**, N. Tehrani, Sh. W. Chi *Nondestructive Testing and Evaluating,* 2018

Media Coverage

- *New Scientist:* How to Avoid Being Fooled by AI-Generated Misinformation
- *Kellogg Insight:* Can You Tell if These Photos Are AI-Generated?
- *Mashable:* How to identify AI-generated videos
- *Kellogg Insight:* When Put to the Test, Are We Any Good at Spotting AI Fakes?
- *Technology Magazine:* Does Google's Veo 3 Do Enough to Distinguish AI and Reality?

Doctoral Thesis | Enriched Numerical Method for Wave Propagation and Assessing Material Damage Using Nonlinear Acoustics, ***Negar Kamali****, University of Illinois at Chicago,* 2018

ACADEMIC EXPERIENCE

Northwestern University | *Research Assistant at Human-AI Collaboration Lab (Kellogg School of Management)* September 2022 - Present

Project: AI-Assisted Decision Making — How Expert and LLM Guidance Shapes Human Judgment

- Designed and led a 50,000+ participant randomized controlled trial comparing how different AI advisory interventions (LLM-generated vs. expert-generated guidance) affect human judgment quality and decision calibration.
- Evaluated three generations of frontier AI models (GPT-4.1, Claude Opus 4.6, Gemini 3 Pro) as advisory tools, designing structured prompts and comparing their effectiveness at augmenting human decision-making.
- Built, curated, and analyzed multi-modal datasets (images and videos; $>$2,000 items), using Generative AI tools including Google Veo, MidJourney, Adobe Firefly, and Stable Diffusion.
- Engineered multi-model LLM evaluation pipeline using OpenAI, Anthropic, and Google Gemini APIs with structured prompt design, automated advice generation, and cross-model comparison across 2,000+ stimuli.
- Developed and deployed a full-stack experimental platform (Python/Flask, SQLite, JavaScript) supporting adaptive balanced randomization across 27 experimental cells, pre-registration, and automated data collection at scale.
- Applied mixed-effects regression models, bootstrap power analysis, and causal inference methods to analyze 750,000+ individual judgments across 9 stimulus sets.
- Trained government analysts on AI literacy and deepfake detection through workshops and invited talks (CODE@MIT, CMU AI & Disinformation Summit, NC State Laboratory for Analytical Science).
- Collaborated with interdisciplinary teams (AI, HCI, media science, psychology) and engaged with external partners to evaluate interventions for trustworthy, human-centered AI in organizational settings.

Project: Uncertainty Communication in AI-Assisted Decision Tasks

- Explored conformal prediction sets as a method for communicating AI uncertainty to human decision-makers in distribution-free settings.
- Conducted a thematic analysis on how AI-generated confidence sets affect human trust, reliance, and labeling accuracy across in-distribution and out-of-distribution tasks.

Project: Participatory Design of AI Decision-Support Tools for Healthcare

- Investigated how end-users interact with and interpret next-day machine learning stress predictions, explanations, and recommendations in a healthcare context.
- Directed participatory design sessions with diverse stakeholder groups to co-design patient-facing AI decision-support tools.
- Devised a prototype Decision Support Tool (DST) showcasing predictions, explanations, bias, uncertainty, risk, and actionable recommendations.
- Collaborated with the Center for Advancing Safety of Machine Intelligence (CASMI).

Univ. of Illinois at Chicago | *Research Assistant* 2013-2018

- Developed an Enriched Reproducing Kernel Particle Method (RKPM) to solve for linear and nonlinear wave propagation PDEs.
- Conducted numerical simulation of wave propagation in multiscale material.
- Wrote several user subroutines for the commercial software Abaqus.

SUMMARY OF RELATED SKILLS AND QUALIFICATIONS

- **Research Methods** | Experiment design, randomized controlled trials, A/B testing at scale, causal inference, mixed-effects modeling, survey design, open-science workflows
- **Programming** | Python, R, JavaScript, SQL, HTML/CSS, MATLAB, Fortran, Git

- **ML & AI Tools** | TensorFlow, PyTorch, SKLearn, OpenAI API, Gemini API, Bayesian modeling
- **Generative AI & Multimedia** | Google Veo, MidJourney, Adobe Firefly, Stable Diffusion, ComfyUI, DALL·E, Kling AI, RunwayML, Gemini
- **Prototyping & Experimentation** | Developed and deployed interactive behavioral experiments and web applications (Python/Flask) for studying human-AI collaboration at scale
- **Data Analysis** | Tableau, statistical analysis (frequentist and Bayesian), thematic/qualitative analysis
- **Relevant Coursework** | Bayesian Statistics, Decision Theory, Law and Digital Technologies

INDUSTRY EXPERIENCE

Software Developer | US API Manager | *SkyCiv* Jan 2021 - Sept 2022

- Developed cloud-based software for structural engineers, coordinating cross-functional product development across distributed teams.

Structural Engineer | Automation Expert | *Arup* Nov 2020 - Jan 2021

- Designed and maintained AI-augmented analysis workflows that transformed end-to-end team collaboration and decision processes in a global engineering organization.

Structural Engineer Professional | *SOM* Jun 2018 - Nov 2021

- Researched Finite Element (FE) topology optimization for structural elements.
- Developed ML models (TensorFlow CNN) for predicting post-tensioned tendons and classifying building damage, integrating AI tools into professional engineering workflows.

PROFESSIONAL AFFILIATIONS

- Graduate Society of Women Engineers, Professional Development Officer, *Northwestern University*, 2023-2024
- Graduate Society of Women Engineers, Founder and President, *Univ. of Illinois at Chicago*, 2016
- Active reviewer for professional journals such as Journal of Engineering Mechanics, Journal of Applied Sciences, and Journal of Soft Computing in Civil Engineering, 2019-2022