Shumian Xin

(412) 327-8512 • xinshumian@gmail.com
shumianxin.github.io • shumianxin

Summary & Expertise

- Product-oriented Computer Scientist with end-to-end feature ownership across discovery and problem framing, requirements and success metrics, prioritization, cross-functional execution, hands-on research and engineering, release quality, and iteration using product telemetry and user feedback.
- Core contributor to **Project Indigo** at Adobe Emerging Products, an experimental iOS camera app that reached **#5 US Photo & Video** and **1M downloads in 4 weeks**.
- Technical depth in computational photography, computer vision, machine learning, and generative AI, with strength in benchmarking, reliability, and constraint-aware optimization. I deliver production-ready releases by setting quality bars and evaluation plans, making explicit tradeoffs, and aligning stakeholders through technical narratives, docs, demos, and presentations.
- **Product training:** Stanford Online Product Management Certificate, verified credential

Experience

- **Adobe Inc.** San Jose, CA, USA
  Computer Scientist, Emerging Products (NextCam) Team Jan 2023 – Present
  - Core contributor to **Project Indigo**, an experimental iOS camera app that reached **#5 US Photo & Video** and **1M downloads in 4 weeks**
  - Own capture and editing features end-to-end, defining success criteria and evaluation, driving cross-functional delivery, and staying hands-on in algorithm development, integration, tuning, quality validation, and release readiness; set the quality bar and shipped performance-critical pipeline features under latency, memory, thermal, and device-variability constraints
  - Led diffusion-based refocus work with a product lens, emphasizing controllability, visual consistency, and workflow integration; published at SIGGRAPH Asia 2025
  - Exploring agentic, multimodal UX and evaluation for usefulness, reliability, and trust
- **Google** Mountain View, CA, USA
  Research Intern, Google Camera Team May – Nov 2020
  - Improved robustness of post-capture effects under real-world capture conditions using Pixel dual-pixel sensors for single-shot defocus estimation and deblurring
  - Defined deliverables and evaluation with the team and delivered an optimization approach that jointly estimates defocus and reconstructs an all-in-focus image; resulted in an ICCV 2021 Oral
- **Carnegie Mellon University** Pittsburgh, PA, USA
  Ph.D. Researcher Aug 2017 – Dec 2022
  - Built end-to-end computational imaging systems and evaluation pipelines; work recognized with the **CVPR 2019 Best Paper Award** and **Microsoft Research PhD Fellowship finalist** distinction
  - Developed non-line-of-sight reconstruction methods that recover occluded objects from indirect light transport, with potential applications in robotics and autonomy, search and rescue, and inspection in obstructed environments

Education

- **Carnegie Mellon University** — Pittsburgh, PA, USA
  Ph.D. in Robotics — Aug 2017 – Dec 2022
  Advisors: Prof. Ioannis Gkioulekas and Prof. Srinivasa Narasimhan
  M.S. in Electrical and Computer Engineering — Aug 2015 – Dec 2016
- **Xi'an Jiaotong University** — Xi'an, China
  B.S. in Electrical Engineering and Automation — Sep 2011 – Jun 2015
  Enrolled in the Special Class for the Gifted Young of China

Selected Publications

- **Learning to Refocus with Video Diffusion Models** [webpage, paper, code]
  SaiKiran Tedla, Zhoutong Zhang, Xuaner Zhang, **Shumian Xin**
  ACM SIGGRAPH Asia, 2025 Conference Track
- **Defocus Map Estimation and Deblurring from a Single Dual-Pixel Image** [webpage, paper, code]
  Shumian Xin, Neal Wadhwa, Tianfan Xue, Jonathan Barron, et al.
  IEEE ICCV, 2021 **Oral Presentation**
- **A Theory of Fermat Paths for Non-Line-of-Sight Shape Reconstruction** [webpage, paper, code]
  Shumian Xin, Sotiris Nousias, Kiriakos N. Kutulakos, et al.
  IEEE CVPR, 2019 **Oral Presentation, Best Paper Award out of >5000 submissions**