

DANIEL MIAU

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SUMMARY

- Hands-on experience in software and system development.
- Proficient in C/C++, Objective-C/Swift, Python, and MATLAB. Basic knowledge in TensorFlow.
- Research and publications in human-computer interaction, computer vision, and computational photography.

EDUCATION

COLUMBIA UNIVERSITY, COMPUTER SCIENCE, NEW YORK, NY 6/11~5/18

- Doctor of Philosophy
Dissertation: Personalized Navigation Instruments for Map User Interfaces
Advisor: Prof. Steven Feiner

COLUMBIA UNIVERSITY, COMPUTER SCIENCE, NEW YORK, NY 9/09~6/11

- Master of Science (Machine Learning Track)
Advisor: Prof. Shree Nayar

GEORGIA INSTITUTE OF TECHNOLOGY, AEROSPACE ENGINEERING, ATLANTA, GA 8/02~6/04

- Master of Science
Advisor: Prof. Eric Johnson

EXPERIENCE

Computer Scientist, Adobe, San Jose, CA 4/21~present

- Mobile computational photography

Software Engineer, Citymapper, London, UK 2/19~2/21

- Developed the Citymapper iOS app in a small, fast-paced, startup team. Contributed to the core transit features, walking/cycling navigation, as well as Ride (a taxi-like service), and Pass (a transportation pass for London). (Objective-C, Swift)

Graduate Research Assistant, Computer Science, Columbia University, New York, NY 6/10~5/18

PhD student in the Computer Graphics and User Interfaces Lab (5/14~5/18)

- Focused on human-computer interaction (HCI), augmented/virtual reality (AR/VR).
- Developed navigation tools for geospatial information user interfaces (e.g., maps, 3D environments).
- Drove all projects from idea conception, iOS prototyping, to publication (solo non-faculty contributor).
- Published Personalized Compass, SpaceTokens, and SpaceBar. (Objective-C, C/C++, Open GL)

MS/PhD student in the Computer Vision Lab (6/10~5/14)

- Focused on computer vision and computational photography.
- Developed algorithms (deblurring, refocusing, tracking, and depth estimation) and computational cameras.
- Taught myself whatever was necessary, be it obscure SDK or experimental hardware, to push projects to completion. (While I collaborated with a senior/former PhD student in each project, my collaborators were remote in 2 out of the 3 projects.)
- Published Gigapixel Computational Camera, Focal Sweep Photography, and Focal Sweep Videography with Deformable Optics. (MATLAB, C/C++, Python, HTML5/JS, PHP)

Software Quality Engineer, The MathWorks, Natick, MA

2/05~8/09

- Developed infrastructure for testing MATLAB/Simulink and C/C++ code generation products. (MATLAB, Perl)

Data Analysis Intern, Lockheed Martin System Integration, Owego, NY

5/03~12/03

- Developed data analysis tools for the MH-60R helicopter avionic integration team. (MATLAB)

PEER-REVIEWED PUBLICATIONS

- **D. Miao**, S. Feiner, "SpaceTokens: Interactive Map Widgets for Location-centric Interactions," Proceedings of the 2018 Conference on Human Factors in Computing Systems (CHI), April 2018.
paper: <https://doi.org/10.1145/3173574.3173822>
- **D. Miao**, S. Feiner, "Personalized Compass: A Compact Visualization for Direction and Location," Proceedings of the 2016 Conference on Human Factors in Computing Systems (CHI), May 2016.
paper: <https://doi.org/10.1145/2858036.2858068>
- **D. Miao**, O. Cossairt, and S.K. Nayar, "Focal Sweep Videography with Deformable Optics," IEEE International Conference on Computational Photography (ICCP), April 2013.
paper: <https://doi.org/10.1109/ICCPHOT.2013.6528302>
- O. Cossairt, **D. Miao**, and S.K. Nayar, "A Scaling Law for Computational Imaging with Spherical Optics," Journal of Optical Society America, Nov. 2011.
paper: <https://doi.org/10.1364/JOSAA.28.002540>
- O. Cossairt, **D. Miao**, and S.K. Nayar, "Gigapixel Computational Imaging," IEEE International Conference on Computational Photography (ICCP), Mar. 2011.
paper: <https://doi.org/10.1109/ICCPHOT.2011.5753115>

OTHER PUBLICATIONS

- **D. Miao**, S. Feiner, "Personalized Compass: A Demonstration of a Compact Visualization for Direction and Location," Proceedings of the 2016 Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA), May, 2016.
paper: <https://doi.org/10.1145/2851581.2890248>
- C. Zhou, **D. Miao**, and S.K. Nayar, "Focal Sweep Photography for Space-Time Refocusing," Technical Report, Dept. of Computer Science, Columbia University, Nov. 2012.
paper: <https://doi.org/10.7916/D8V69SZB>

PATENTS

- S.K. Nayar, **D. Miao**, and C. Zhou, "Systems, Methods, and Media for Providing Interactive Refocusing in Images," US Patent 10,582,120, Mar. 2020.
link: <https://patents.google.com/patent/US10582120B2/en>
- O. Cossairt, **D. Miao**, and S.K. Nayar, "Camera Systems and Methods for Gigapixel Computational Imaging," US Patent 9,473,700, Oct. 2016.
link: <https://patents.google.com/patent/US9473700B2/en>

TEACHING EXPERIENCE

Teaching Assistant, Computer Science, Columbia University, New York, NY

- COMS 4731: Computer Vision 1/14~5/14
- COMS 4731: Computer Vision 9/11~12/11
- COMS 3101: Programming Languages (MATLAB) 1/10~5/10