

Budmonde Duinkharjav

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<https://github.com/budmonde/>
<https://budmonde.com/>

Education

New York University, Brooklyn, NY *Spring 2021 - present*
PhD Candidate in Computer Science
Advisor: Qi Sun

Massachusetts Institute of Technology, Cambridge, MA *Fall 2014 - Spring 2019*
MEng in Computer Science and Engineering
Advisor: Frédo Durand
Thesis: Learning non-stationary SVBRDFs using GANs and Differentiable Rendering
BS in Computer Science and Engineering

Work Experience

Adobe Research, San Jose, CA - *Research Intern* *Summer 2023*

NVIDIA Research, Santa Clara, CA - *Research Intern* *Summer 2022*
Developed a perceptually-based image quality assessment metric for video game applications.

Facebook, Seattle, WA - *Software Engineer* *Fall 2019 - Spring 2021*
Researched and maintained profile-guided optimizations for Facebook's mobile apps.
Contributed to Redex, the java byte-code optimizer for Android apps.

MIT, CSAIL, Cambridge, MA - *Research Assistant* *Fall 2017 - Spring 2019*
Developed a deep learning system for inferring surface textures using differentiable rendering.
Worked on a system for procedural generation of large-scale city landscape 3D models.

Facebook, Menlo Park, CA - *Software Engineering Intern* *Summer 2018*

Instagram, Menlo Park, CA - *Software Engineering Intern* *Summer 2017*

Omron R&D, Kyoto, Japan - *Research Intern* *Summer 2016*
Worked on super-resolution techniques applied on LIDAR scan images.

MIT, Civil&Environ. Eng. Dept., Cambridge, MA - *Research Assistant* *Fall 2014 - Spring 2015*
Analyzed the fluid behavior of water droplet collisions on flat surfaces.

Publications

Imperceptible Color Modulation for Power Saving in VR/AR *E-Tech at SIGGRAPH 2023 (to appear)*
K. Chen, **B. Duinkharjav**, N. Ujjainkar, E. Shahan, A. Tyagi, J. He, Y. Zhu, Q. Sun

Color-Perception-Guided Display Power Reduction for Virtual Reality *SIGGRAPH Asia 2022*
B. Duinkharjav*, K. Chen*, A. Tyagi, J. He, Y. Zhu, Q. Sun (* co-authors)

Reconstructing room scales with a single sound for augmented reality displays *JID 2022*
B. Liang, A. Liang, I. Roman, T. Weiss, **B. Duinkharjav**, J. P. Bello, Q. Sun

FoV-NeRF: Foveated Neural Radiance Fields for Virtual Reality **Best Journal Paper at ISMAR 2022**
N. Deng, Z. He, J. Ye, **B. Duinkharjav**, P. Chakravarthula, X. Yang, Q. Sun

- Image Features Influence Reaction Time:
A Learned Probabilistic Perceptual Model for Saccade Latency** **Best Paper at SIGGRAPH 2022**
B. Duinkharjav, R. Brown, P. Chakravarthula, A. Patney, Q. Sun
- Modeling And Optimizing Human-In-The-Loop Visual Perception
Using Immersive Displays: A Review** *SID Display Week 2022*
Q. Sun, B. Duinkharjav, A. Patney
- Instant Reality: Gaze-Contingent Perceptual Optimization
for 3D Virtual Reality Streaming** *IEEE VR 2022*
S. Chen, B. Duinkharjav, X. Sun, L. Wei, S. Petrangeli, J. Echevarria, C. Silva, Q. Sun
- Learning Non-stationary SVBRDFs using GANs and Differentiable Rendering** *MIT M.Eng Thesis 2019*
B. Duinkharjav

Teaching Experience

- Digital and Computational Photography (6.815)**, MIT, Cambridge, MA - *Teaching Assistant* *Spring 2019*
Graduate course popular for students focusing in computer graphics, computer vision, and HCI.
Topics: Image denoising, demosaicing, stitching, and blending. HDR and panorama photography.
Introduces the HALIDE language for high-performance image processing.
I helped develop some homework assignments, held office hours, and graded assignments.
- Computer Systems Security (6.858)**, MIT, Cambridge, MA - *Teaching Assistant* *Spring 2018*
Graduate course popular for students focusing in computer systems.
Topics: OS security, capabilities, language security, security in web applications and more.
I held office hours, and graded assignments and final projects.
- WebLab: Intro to Web Programming (6.148)**, MIT, Cambridge, MA - *Co-Instructor* *Winter 2016, '17, '18*
Introduces undergraduate students on how to build a dynamic web application with a server backend.
Course culminates in a competition for the best final project. Course website: weblab.mit.edu
I organized the course content and provided technical and creative feedback for student projects.

Professional Services

Reviewer for ACM SIGGRAPH, IEEE ISMAR, IEEE VR

Awards

- NYU Deborah Rosenthal, MD Award** for Outstanding Performance on PhD QE, *Spring 2023*
- Snap Research Fellowship, 2022**, Honorable Mention *Fall 2022*
- ACM SIGGRAPH 2022**, Best Paper Award *Summer 2022*
- MIT Intro to Computer Graphics Final Project**, Best Project Honorable Mention *Fall 2017*
- MIT Web Programming Competition**, 1st Place *Winter 2015*
- 45th International Physics Olympiad**, Silver Medal *Summer 2014*
- 14th Asian Physics Olympiad**, Bronze Medal *Spring 2014*
- 44th International Physics Olympiad**, Bronze Medal *Summer 2013*