Selena Zi-Han Ling

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Education

- **University of Toronto** **Toronto, ON** *2021 - 2025*
  - PhD in Computer Science at Dynamic Graphic Project
- **Brown University** **Providence, RI** *2019 - 2021*
  - Master of Science in Computer Science, Visual Computing track
- **Middlebury College** **Middlebury, VT** *2015 - 2019*
  - Bachelor of Arts in Computer Science, Minor in Mathematics and Architecture
  - Major GPA: 4.00/4.00; Overall GPA: 3.88/4.00;
- **Budapest Semester in Mathematics** **Budapest, Hungary** *Spring, 2018*

Publication

- **Selena Ling**, Nicholas Sharp, Alec Jacobson. VectorAdam for Rotation Equivariant Geometry Optimization NeurIPS 2022
- Kai Wang, Xianghao Xu, Leon Lei, Natalie Lindsay, **Selena Ling**, Angel X. Chang, Manolis Savva, Daniel Ritchie. Roominoes: Generating Novel 3D Floor Plans From Existing 3D Rooms SGP 2021
- Benjamin Attal, **Selena Ling**, Aaron Gokaslan, Christian Richardt, James Tompkin. MatryODShka: Real-time 6DoF Video View Synthesis using Multi-Sphere Images ECCV 2020
- **Selena Ling** Generalization of Combinatorial Nullstellensatz , Undergraduate Mathematics Thesis 2019

Experience

- **Building Reconstruction from Ortho Imagery** **Geopipe Inc.**
  Deep Learning/Computer Vision Research Intern *Summer 2020 - Current*
  - Working with Professor Daniel Ritchie on improving building mass prediction leveraging Image-to-Image translation neural networks.
- **Deep View Synthesis for 360 Images** **Brown University**
  Research Assistant *Summer 2019 - Current*
  - Working with Professor James Tompkin on real-time learning-based view synthesis on 360 images to reduce VR motion sickness, with potential application in robot teleoperation;
  - Helped building the dataset and the training pipeline; ran multiple training experiments with different projection models;
  - Built one of the baseline model that performs view synthesis with graph convolutional network (GCN).
- **Nonrepresentational Image Features Estimation** **Middlebury College**
  Research Assistant *Summer 2018*
  - Worked with Professor Christopher Andrews on using machine learning techniques to guide generative art process;
  - Developed a web application for user study;
  - Built neural networks to identify mid-level image features, such as curviness and symmetry etc.
- **Investigate Economics Impacts of High-Speed Railroad Construction in China** **Fudan University**
  Research Assistant *Summer 2017*

Honors and Awards

Departmental Fellowship 2022 - 2023
DSI Doctoral Student Fellowship 2023 - Present

Departmental Service

DGP Working Group on Fostering a Safe and Inclusive Workplace 2021 - 2022

Organizing

Toronto Geometry Colloquium : Co-organizing a weekly web series to promote young researchers and researchers from underrepresented communities in geometry processing.

Toronto Architecture and Geometry Workshop Co-organizing collaborative workshop between Dynamic Graphics Project and the Daniels Faculty of Architecture, Landscape, and Design at University of Toronto for students from geometry processing and architectural computation research groups to communicate relevant issues in their fields.

Academic Service

Journal Reviewer: Graphical Models (**GMOD**), SIGGRAPH Asia

Teaching: Introduction to Computer Graphics, Computer Vision, Introduction to Image Understanding, Introduction to Programming

Architecture Design Projects

Centro Cultural Movil, Migrant Justice Headquarter, South Bay Crossing, Middlebury Hydropower Cafe

Core Technical Skills

Languages: Python, PyTorch, Tensorflow, C++

Skills: Blender, Adobe Illustrator, Adobe Premiere

Relevant Coursework

Visual Computing Physics-based Animation, Geometry Processing, Introduction to Computer Graphics, Advanced Computer Graphics, Computer Vision, Computer Vision for Graphics and Interaction Seminar, Digital Signal Processing, Animation Studio, 3D Photography

Mathematics Linear Algebra, Numerical Linear Algebra, Probability, Stochastic Processes, Graph Theory, Combinatorics, Polynomial Method Seminar

Design/Art Introduction to Architectural Design, Intermediate Architectural Design, Chinese Art, Monuments and Ideas in Western Art, Modern Architecture

Coursera Machine Learning, Deep Learning series