YunFan Zhou

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EDUCATION

New York University, New York, NY

- PhD. Candidate in Computer Science, Geometric Computing Lab — 2020 Sep –

University of Texas at Austin, Austin, TX — *gpa 3.938 / 4.0*

- Bachelor of Science (B.S.) in Computer Science, — 2017 Aug – 2020 May
- Bachelor of Science (B.S.) in Mathematics

Wesleyan College, Macon, GA — *gpa 4.0/4.0*

- Bachelor of Art (B.A.) in Applied Mathematics — 2015 Aug – 2017 May

RESEARCH PROJECTS

- **Signal-Adaptive Tessellations of Displacement Meshes**, NYU & Adobe — 2022 Sep– now

  Generate self-intersection free and high quality meshes using simple base mesh with texture and displacement maps. Tessellation is adaptive to the features in displacement maps and texture maps and the result is as coarse as possible to provide speed-ups for robust downstream applications, such as physical-based simulations, boolean operations, and skinning/rigging.

- **GPU Mesh Decimation for Interactive Applications**, Adobe — 2022 May– 2022Aug

  GPU (CUDA) implementation for mesh decimation on the fly. Achieved 60x speed-ups compared to serial CPU implementation and 15x speed-ups compared to parallel CPU implementation.

- **Wildmeshing Toolkit: Declarative Specification for Unstructured Mesh Editing Algorithms**, NYU 2021 Nov– 2022 May

  An open-source geometry modeling SDK (click to wmtk-toolkit github repo) that uses declarative specifications for mesh generating/geometric processing algorithms. It abstracts data structure and low-level mesh-editing details and guarantees basic mesh quality requirements specified as invariants. 5 different basic geometry processing algorithms are also implemented in the code base to demonstrate easy customization and parallelism.

- **Optimizing Contact-Based Assemblies**, NYU — 2020 Sep– 2021 Sep

  Working with Davi Tozoni, Dr. Denis Zorin on the project of supporting shape optimization for assemblies that are held together by contact and friction. Separately, explored the influence of meshing/remeshing, given different refinement level, on irregular stress singularities in linear elasticity simulations.

- **Predict Light Directions in Images Using ResNet50**, The Technical University of Munich (TUM) & Munich University of Applied Sciences (HM), Germany (in remote) — 2020 May - Aug

  Using a data set of 160000 synthetic and real images to develop and train a modified deep learning ResNet to detect the azimuth and elevation of the light source in the image and to predict lighting information for a given image.

- **Real Time Simulation of Veronoid-Based Fracturing and Shattering**, UT Austin — 2020 Mar - May

  Implemented a real time fracturing and shattering scheme using Veronoid decomposition based on a set of mass-spring system for general objects. Compute each object's after-collision decomposition on-the-fly using two approaches: Force Absorption and Lagrangian Multiplier.
  An interesting example can be seen at ring of balls.

- **Stochastic Variance Reducing Method Study and Implementation**, Computational Science Engineering and Mathematics (CSEM), UT Austin — 2018 May –Aug

  Worked with Dr. George Biros at Institute of Computational Science and Engineering department of UT, Austin on comparing different Stochastic Variance Reducing methods, namely SVRG, SVRG2 and Batch SVRG2. Implemented the three methods listed and compared their behaviors towards unconstrained optimization on equations up to 100 dimension.

- **COMAP International Math Modeling Contest**, Honorable Mention Award — 2017 Jan

  Worked in a group of three on finding bottlenecks of airport security check for higher efficiency and contructed a 15-page-paper in four days.

PUBLICATIONS

- **Declarative Specification for Unstructured Mesh Editing Algorithms**, *SIGGRAPH Asia 2023* (accepted) — 2022

  Zhongshi Jiang*, Jiacheng Dai, Yixin Hu, **YunFan Zhou**

  Jeremie Dumas, Qingnan Zhou

  Daniele Panozzo, Denis Zorin, Teseo Schneider

- **Optimizing Contact-based Assemblies** , *SIGGRAPH Asia 2022* — 2021

  Davi Colli Tozoni, **YunFan Zhou**, Denis Zorin

WORKING EXPERIENCE

- **Research Engineer Intern**, Adobe 2022 May –Aug
  See research project *GPU Mesh Decimation for Interactive Applications*
- **Technology Summer Intern**, Schlumberger 2019 June –Aug
  Data visualization engineer. Worked on visualizing oil, gas, and seismic data using Unity game engine. Enable users to dynamically visualize extensive data sets that are available through the Data Ecosystem stored on the Schlumberger cloud.

TEACHING EXPERIENCE

- **TA for Geometry Processing**, NYU 2022 Spring
  Responsibility includes: leading recitations for class of 60 students, holding office hours 3 times a week, and grading coding projects.
- **Grader for Introduction to Stochastic Processes**, University of Texas, Austin 2019 Spring, Fall
  Grader for 2 classes of 100 students.
- **TA for Elements of Software Engineering**, University of Texas, Austin 2019 Spring
  Undergraduate TA for a class of 78 students. Responsibilities include: grading homework and exams, holding office hours and offering private tutor on appointment.

AWARDS & SCHOLARSHIPS

- **MacCracken Fellow**, NYU 2020 Fall – 2025 Spring
  Researching, attending graduate education and teaching at NYU Graduate School of Art and Sciences
- **College Scholar for College of Natural Science**, University of Texas, Austin 2019 Spring
  For juniors/seniors attaining a GPA of at least 3.5.
- **Moncrief Research Summer Fellowship**, University of Texas, Austin 2018 Summer
- **Freshman Research Initiative Summer Fellowship**, University of Texas, Austin 2018 Summer
- **President Scholar**, Wesleyan College 2015 Fall – 2017 Spring
  4 times winner for demonstrating academic excellency
- **Trustee Scholarship**, Wesleyan College 2015 Fall – 2017 Spring
- **Margaret Frances Edenfield Math Scholarship**, 2017 2017 – 2018
  For rising Math major seniors or juniors who demonstrates excellence in Mathematics.
- **Beverly and Gilbert Held Endowed Scholarship**, 2016 2016 – 2017
  For students outstanding in Mathematics and Computer Science.

ACTIVITIES

- **Women in CS Dell-Nell Mentor**, University of Texas, Austin 2018 Fall
  Serving as mentor for freshmen of Women in Computer Science at UT, Austin, working with expected female undergraduate students to share experience in CS and help them transit to college life.
- **Math Club Vice President**, Wesleyan College 2016 Fall – 2017 Spring
  - **Code With Us Founder & Main Facilitator** 2016 Fall
    Launched Code With Us for a semester of after-class course in Python language for a class of 10 at Wesleyan College. Organized a facilitator-board of 5, and became the main facilitator.
- **Girl Who Code student assistant**, Wesleyan College 2016 Fall – 2017 Spring

[*CV compiled on 2022-09-20*]