XI HAN

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EDUCATION

Department of Computer Science, Stony Brook University, New York, United States Aug 2019 – Present
Ph.D. in Computer Science (In progress, expected by Spring 2026) | GPA: 3.9/4.0
Department of Computer Science and Technology, Tsinghua University, Beijing, China Aug 2015 – Jul 2019
B.E. in Computer Science and Technology | GPA: 3.25/4.0

PUBLICATIONS

- **Xi Han**, Fei Hou and Hong Qin, "UGrid: An Efficient-And-Rigorous Neural Multigrid Solver for Linear PDEs", In *Proceedings of the 41st International Conference on Machine Learning*, pp. 17354 – 17373, July 2024.
- Song-Hai Zhang, Ruilong Li, Xin Dong, Paul Rosin, Zixi Cai, **Xi Han**, Dingcheng Yang, Hao-Zhi Huang and Shi-Min Hu, "Pose2Seg: Detection Free Human Instance Segmentation", In *2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 889 – 898, June 2019.

WORK EXPERIENCE

Computer Graphics Lab
Stony Brook University, New York, United States | Research Assistant & Teaching Assistant Aug 2019 – Present
Advisor: Hong Qin, Professor at Department of Computer Science, Stony Brook University

- Conducted research in intelligent modeling. Involved concepts: Differentiable vector graphics, PDE-based modeling, etc.
- Implemented multiple advanced research projects related to graphics and numerical analysis (GPU-based differentiable PDE solvers). Also cooperates with Computer Vision lab on AI/HPC topics and worked on training/inference optimization for CV models. Involved techniques: CUDA kernel fusing, performance profiling, and customized cache-friendly differentiable AI operators such as Monte-Carlo integrator, fused GEMM, 2D mamba, etc.
- Hosted lectures on OpenGL programming with C++/Python, the implementation details of computer graphics applications and algorithms, and the state-of-the-art research topics on graphics and physics-based modeling.

Computer Graphics and Animation Lab
University of Texas at Dallas, Texas, United States | Research Assistant Sep 2018 – Nov 2018
Advisor: Xiaohu Guo, Professor at Department of Computer Science, University of Texas at Dallas

- Worked on the 3D face reconstruction project with a local Samsung research lab. Also constructed a human face model dataset for further research purposes.
- Configured a Linux workstation for deep learning purposes from zero and deployed neural network models on it.

Graphics and Geometric Computing Group
Tsinghua University, Beijing, China | Research Assistant Jan 2017 – Jul 2019
Advisor: Song-Hai Zhang, Professor at Department of Computer Science and Technology, Tsinghua University

- Deployed a MobileNet module on IOS platform with Apple's CoreML framework, and delivered an IOS app for a human segmentation (in Swift and Objective C++).
- Optimized the model used in the app (increased accuracy and added key point recognition) and achieved 10x speedup in FPS.

SKILLS

- Numerical analysis, high-performance computing, computer graphics, machine learning, and Linux system skills.
  - Expertise in AI/HPC: AI-related operators, AI model training/inference optimization. Involved topics: PyTorch C++/CUDA extensions, kernel profiling, fine-tuning, operator fusing, cache optimization, etc.
  - Expertise in programming languages: C/C++ (OOP, STL, Metaprogramming and Concurrency), CUDA and Python.
  - Expertise in tools: PyTorch Profiler, CUDA-GDB, Nsight Compute and NVIDIA Compute Sanitizer.
  - Expertise in frameworks: PyTorch and OpenGL.
  - Other proficiencies: Bash, CMake, Assembly (including PTX), MATLAB, Java, Objective C/C++ and Swift.
- Teaching skills:
  - A wealth of experience in teaching both undergraduate and graduate courses in C++/Python and Computer Graphics.
- Language Proficiencies:
  - Chinese (Mandarin) (Native speaker);
  - English (Proficient for working scenarios. TOEFL: 106/120; GRE: 324/340 + Writing 3.5);
  - Japanese (Sufficient for basic working scenarios. JLPT: N1 173/180, N2 169/180).