




Yinqi Sun — Curriculum Vitae

 <https://billsun.dev>

 sunyingqi0508@gmail.com

 github.com/sunyingqi0508

Education

New York University, Courant Institute of Mathematical Science

M.S. in Computer Science, GPA: 3.84/4.0

New York, NY

Sept 2020 - Dec 2021

Shandong University, Elite Class

B.S. in Computer Science, GPA: 3.55/4.0

Shandong, China

Sept 2013 - June 2017

Standardized Test Scores

TOEFL iBT: 113** (*Reading:30, Listening:30, Speaking:25, Writing:28*)

Publications

- Yunhai Wang, Y. Wang, **Yinqi Sun**, L. Zhu, K. Lu, C. Fu, Michael Sedlmair, O. Deussen, and B. Chen “**Revisiting Stress Majorization as a Unified Framework for Interactive Constrained Graph Visualization**”, in IEEE Transactions on Visualization and Computer Graphics (Proc. **Vis’17**), vol. 24, no. 1, pp. 489-499, Jan. 2018, doi: 10.1109/TVCG.2017.2745919.
- Yunhai Wang, Y. Wang, **Yinqi Sun***, H. Zhang*, C. Fu, Michael Sedlmair, B. Chen, O. Deussen “**Structure-aware Fisheye Views for Efficient Large Graph Exploration**”, in IEEE Transactions on Visualization and Computer Graphics (Proc. **Vis’18**), vol. 25, no. 1, pp. 566-575, Jan. 2019, doi: 10.1109/TVCG.2018.2864911.

Ongoing Works

- **Yinqi Sun**, Dennis Shasha, “**AQuery++: A high-performance, extensible Database for incremental analysis**” (in submission to VLDB’23)
- Z. Yuan, **Yinqi Sun**, Dennis Shasha, “**Forgetful Forests: high performance tree-based learning algorithm for streaming data**”

Research

New York University, Research Assistant

Jan 2022 – Current

Advisor: Prof. Dennis Shasha

<https://cs.nyu.edu/~shasha>

- Designed and implemented AQuery++, an in-memory column-store database featuring compiled query execution that can be used for analytical and time-series workloads. The system supports user plugins and UDFs which will be compiled into native assembly.
- Built an application that runs incremental machine learning workloads on top of AQuery++.
- Involved in the design of an incremental decision tree algorithm.

Columbia University, Research Staff

Aug 2018 – Jan 2020

Advisor: Prof. Eugene Wu

<http://www.cs.columbia.edu/~ewu/>

- Conducted research related to Data Provenance, Database architecture and compiled query execution.
- Proposed a physical-level lineage capturing scheme that reduces the lineage capture overhead and lineage size by:
 - taking advantage of patterns that each physical operators in the query plan reorganizes the data,
 - using lazy lineage materialization

Shandong University, Research Assistant

Sept 2016 - Aug 2018

Advisor: Prof. Yunhai Wang

<https://www.yunhaiwang.net>

- Conducted researches around graph visualization, dimensionality reduction and vector field visualization techniques.
- Worked on improving over Stress Majorization (MDS) algorithm to allow for custom constraints (Vis’17) and a fisheye view algorithm that focuses on minimizing structural distortion (Vis’18).
- Worked on code optimization for lab projects and parallel algorithms on GPU (CUDA).
- Studied saliency detection algorithms based on kNN that are used in Vector field visualization and built an interactive vector field visualizer.

*Has equal contribution

** Best Scores since Sept. 2021

Projects

Raytracing in GLSL

Feb - May 2021

- Real-time interactive ray tracing with refractions in a fragment shader of WebGL. Built from ground up without external libraries, more descriptions on demo page. see: <https://billsun.dev/graphics/hw4>
- Other weekly projects like this: <https://billsun.dev/graphics/>

AQuery++ Database

Jun - Nov 2022

- A database management system featuring Column-Store, Compiled Query Execution, Flexible User Defined Functions, builtin timeseries functions and much more. see: <https://github.com/sunyinqi0508/AQuery2>

Interactive Vector Field Visualization Tool

2017-2018

- A Vector Field Visualization tool written with QT (C++) that has kNN based saliency highlighting using KD tree and LSH implemented in CUDA kernels. see: <https://github.com/sunyinqi0508/cuLines>

ChocoPy Compiler

Feb - May 2021

- A compiler in Java that compiles ChocoPy (subset of Python) programs into RISC-V assembly. see: <https://git.billsun.dev/bill/Chocopy>

Awesome Pascal

Oct 2015

- Wrote my first compiler in C++ that compiles a subset of Pascal into pseudo-assembly and an interpreter that executes the assembly.
- The compiler is built without external libraries using **SLR(1)** parsing. The grammar is hard-coded in the form of an LR parsing table (states) and the FOLLOW set (follows)
- See: <https://git.billsun.dev/bill/AwesomePascal>

Game Architecture

Nov 2021

- Implemented game server for the submarine game in the Heuristic Problem Solving Class: <https://github.com/sunyinqi0508/submarine-architecture>
- The server includes a game backend used for game logic and communication with clients, a frontend to displays game progress and client examples in 3 different programming languages.
- Designed a Hockey Game for the final project: <https://billsun.dev/Hockey>

Skills

- Programming Languages:
Proficient in: C, C++, Python, JavaScript, SQL, CUDA, GLSL.
Familiar with: Java, Swift, C#, Matlab, Pascal, (x86, ARM, RISC-V) Assembly, Bash
- Professional Skills:
Design tools: Adobe Illustrator, Photoshop, L^AT_EX
Development tools: Git, Docker, Tensorflow, *nix, Windows
- Languages:
Native speaker in Chinese.
Fluent in English. (TOEFL 113, [Best Scores](#)* since Sept. 2021)
Conversational with Japanese. (JLPT N2).

Work

Beijing Nine Second Information Technology Co., Ltd.

iOS Engineer

2015

- Developed the first iOS version of their commercial product iLife (an Online Shopping platform) which was published to Apple AppStore on September 2015.

*See TOEFL Explain: <https://billsun.dev/T.pdf>