

Angel (Leyi) Cui

(332) 323-4897 | lc3542@columbia.edu | leyicui-angel.github.io

EDUCATION

Barnard College, Columbia University

New York, NY

B.A.; Major in Computer Science; Minor in Dance

Sep 2020 - Expected Dec 2023

- GPA: 3.73; Major GPA: 3.88; Dean's List
- Relevant Courses: AI, Applied ML, UI Design, Program Synthesis, CS Theory, Digital Game Design, Databases, Fundamentals of Computer Systems, Applied Statistical Computing, Engineering SaaS, Cloud Computing, Cryptography, Digital Performance

RESEARCH EXPERIENCES

Virtual Vitality: Augmenting Clinical Decisions via Expert-Informed Transformers

Sept 2023 – Present

Advisor: Steven Feiner, Columbia Graphics and User Interfaces Lab, Columbia University

Kaveri Thakoor, Artificial Intelligence for Vision Science Lab, Columbia University Irving Medical Center

- Designing an interactive system utilizing eye-tracking technology to facilitate an educational tool for medical students, aiding them in identifying glaucoma using OCT reports through AI models trained with ophthalmologists' eye fixation data
- Creating experiment paradigms using PhysioLabXR and Unity; developing user studies for ophthalmologists

PhysioLabXR Scripting Graphic Programming Interface Design and Code Generation

Sept 2023 – Present

Advisor: Steven Feiner, Columbia Graphics and User Interfaces Lab, Columbia University

Paul Sajda, Lab for Intelligent Imaging and Neural Computing, Columbia University

- Conducting validation and user testing for PhysioLabXR, an open-source software for visualizing and processing data streams
- Designing and implementing graphic programming interface and code generation for the scripting feature to advance the usability of PhysioLabXR to non-programmers

Safe and Robust Human-Machine Interfaces for Electronic Health Records Systems

May 2023 – Present

Advisor: Eunsuk Kang, Software Design and Analysis Lab, Carnegie Mellon's REU (REUSE) program

- Conducted a usability study on openEMR, an open-source EHR system, based on the NIST guidelines on UI design principles
- Analyzed usability issues, redesign, and potential bad outcomes and included the results in a 60-page usability report
- Presented an automatic approach of a tool capable of generating erroneous workflows given the original workflow, and a tool capable of automatically testing openEMR's behavior according to the input workflow
- Conducted a case study in entering prescriptions on openEMR using the tool

Advancing the Usability of Temporal Stream Logic

May 2022 – Aug 2023

Advisor: Mark Santolucito, Barnard Programming Language Lab, Barnard College

- Wrote temporal stream logic (TSL), a logic specification language, in different use cases to understand the barriers of writing TSL
- Designed and implemented user interfaces to make writing TSL more accessible
- Conducted user studies on designed interfaces to identify the key barrier of writing specification language
- Implemented TSL tools including simplifying synthesized code and modulo theory for TSL

Reducing Medical Risks in Exercise with Real-Time Pose Detection

Feb 2023 – Present

Advisor: Brian Plancher, Class Project Initiated in Spring 2023 Projects in Computer Science, Barnard College

- Developed a prototype utilizing real-time, rotation-invariant posture detection during workouts to prevent injuries

PUBLICATIONS *equal contribution

Peer-Reviewed

Towards the Usability of Reactive Synthesis: Mapping TSL Misconceptions to Mitigations

Leyi Cui*; Raven Rothkopf*; Mark Santolucito

PLATEAU2024: 14th annual workshop on the intersection of HCI and PL

Towards the Usability of Reactive Synthesis: Building Blocks of Temporal Logic

Raven Rothkopf; Angel Leyi Cui; Hannah Tongxin Zeng; Arya Sinha; Mark Santolucito

PLATEAU2023: 13th annual workshop on the intersection of HCI and PL

On the Two-dimensional Resilient Consensus

Leyi Cui

2019 IEEE 7th International Conference on Computer Science and Network Technology (ICCSNT)

Preprints

OpenEMR Usability Evaluations

Leyi Cui; Eunsuk Kang

POSTERS AND PRESENTATIONS *equal contribution

Virtual Vitality: Augmenting Clinical Decisions via Expert-Informed Transformers

Haowen 'John' Wei *, Ziheng 'Leo' Li *, Kuang Sun, **Angel (Leyi) Cui**, Kaveri Thakoor, Steven Feiner

Center of Excellence in the Neuroscience of Decision-Making at Columbia University Annual Meeting

Nov 2023

Safe and Reliable Medical Records: Assessing the Robustness of OpenEMR

Angel (Leyi) Cui, Eunsuk Kang

Columbia University Undergraduate Computer and Data Science Research Fair, **Best Overall Prize**

Nov 2023

Carnegie Mellon University REUSE Poster Session

Aug 2023

Advancing the Usability of Temporal Stream Logic

Angel (Leyi) Cui, Raven Rothkoph, Mark Santolucito

Barnard College Summer Research Institute Poster Session

Aug 2022

WORK EXPERIENCES

ByteDance Ltd.

Beijing, China

Game Producer & Planner

Oct 2020 – May 2021

- Producer and sole designer for Hui Su Sha Tang, a music game with 545k views, 41k downloads, and a rating of 8.1/10.0
- Designed Mahjong Puzzle Game for Chinese TikTok with 400k daily active users and average retention of 50%+

Apple Inc.

Jiangmen, China

Apple Teacher for programming and music

Jun 2021 – Aug 2021

- Taught 50+ kids computer programming and music in rural areas to promote education equality

SCHOLARSHIPS, PRIZES, AND HONORS

Barnard College, Dean's List

2023 Columbia University Undergraduate Computer and Data Science Research Fair, **Best Overall Prize**

2023 Carnegie Mellon University Research Experiences for Undergraduates in Software Engineering Program **Scholarship**

Fall 2023 Beyond Barnard Internship Program **Grant Receiver**

2022 Columbia University DevFest, **Best Design Prize**

2020 Byte Camp Game Design Track, **Winner**

2019 CRC (FRC) Robotics Competition, **National 2nd Place**

2018 MIT Energy Hackathon, **Third Place**

2018 MIT Energy Hackathon MIT Track, **Winner**

TEACHINGS AND MENTORSHIP

Teaching Assistant, Computer Science Theory, Columbia University

Fall 2023

Instructor: Toniann Pitassi, Students: 200

Barnard Peer Mentoring Program, Mentor

2022 - Present

Teaching Assistant, Computer Science Theory, Columbia University

Spring 2023

Instructor: Xi Chen, Students: 400

Teaching Assistant, Computer Science Theory, Columbia University

Fall 2022

Instructor: Tal Malkin, Students: 400

Application Development Initiative, Mentor, Columbia University

Spring 2022

SKILLS

Languages: Java, Python, C++, C, C#, HTML/CSS/JS, SQL, R, LaTeX

Frameworks/Libraries: Flask, Django, React, PostgreSQL, MySQL, MongoDB, TensorFlow, Pandas, NumPy, OpenCV, Heroku, Selenium

Tools: Unity, Linux, Git, Figma, MATLAB, Adobe Premier, GarageBand

Society Membership: Society of Women Engineers (SWE)

Extracurricular Activities: Screenwriter of comic "The Female Prince Consort" adapted from Huang Mei Opera

Clubs: Columbia Application Development Initiative; Barnard Better, Enhance, and Advance Research Series in Computer Science; Columbia University Ballet Ensemble (CUBE); Barnard & Columbia Chorus