Angel (Leyi) Cui

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EDUCATION

Barnard College, Columbia University ***New York, NY***

B.A.; Major in Computer Science; Minor in Dance *Sep 2020 - Expected Dec 2023*

- GPA: 3.70; Major GPA: 3.85; 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.
- Designing and implementing experiment paradigm using PhysioLabXR and Unity; designing 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 Imgaging 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 to writing TSL
- Designed user interfaces to make writing TSL more accessible
- Conducted user studies on designed interfaces to identify the key barrier of writing specification language

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

- Designed and implemented a prototype using real-time and rotation-variant posture detection in workouts to prevent medical issues

PUBLICATIONS *equal contribution

Peer-Reviewed

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-dimentional Resilient Consensus
Leyi Cui
2019 IEEE 7th International Conference on Computer Science and Network Technology (ICCSNT)

Preprints

Mapping Temporal Stream Logic Misconceptions to Mitigations
Raven Rothkopf *; **Leyi Cui** *; Pawit Sethbhakdi; Mark Santolucito

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, **Leyi 'Angel' 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
***Leyi (Angel) 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 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

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
Achievements: 2019 MIT Energy Hackathon third place; 2019 MIT Energy Hackathon MIT Track Winner; 2020 Byte Camp Game Design winner; 2019 CRC (FRC) Robotics Competition National 2nd place; 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