Kai Wen Cui

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Born: September 3, 1999, Italy
Nationality: Italian
Spoken languages: English, Italian, Chinese

Interests

Machine learning in general, including deep learning, deep representation learning, natural language processing, data mining, generative modeling, multi-agent systems, sequential decision making, and practical applications in finance, healthcare, and sustainable energy.

Skills & Programming Languages

Python, PyTorch, SQL, NoSQL (MongoDB), Java, Javascript, Typescript, HTML, CSS, Node.js, React.js, Apache Airflow, Robotic Process Automation (RPA), UiPath, Qlik Sense, Microsoft SQL Server, Microsoft Azure, Microsoft Excel, Microsoft Power BI, Linux, LaTeX, Git.

Work Experience

Oct 2022 - **Neprix**. Full-time Internship, Data Scientist. Milan, Italy.
Analytics & Development division. Neprix is the credit management branch of the Illimity Bank group. Quantitative model development for real-estate portfolio valuations; Responsible for the development of a unified system for analyzing thousands of previously manually handled documents using state-of-the-art technologies.

Nov 2021 - May 2022 **Deloitte Risk Advisory**. Full-time Internship, Data Analyst. Milan, Italy.
Service line: Digital, Artificial Intelligence Controls & Algorithms (DAICA).
Worked on multiple business modernization projects for large-cap companies and stakeholders. Development of Robotic Process Automation and Business Intelligence solutions, maintenance and improvement of internal processes.

Education

Sep 2018 - Sep 2022 **Politecnico di Milano**. Milan, Italy.
Bachelor of Science, Engineering of Computing Systems
Relevant coursework: Mathematical Analysis I and II, Geometry and Linear Algebra, Logic and Algebra, Probability and Statistics for Computer Science, Information Systems, Data Bases 1, Software Engineering, Algorithms and Principles of Computer Science, Computer Architectures and Operating Systems.
Activities and Societies: Undergraduate research collaborator, PoliMi Data Scientists, PoliMi Chinese Students Association, PoliMi Winter Gala.

Research Experience

Oct 2022- **Research Collaborator.** Adversarial Attacks. Politecnico di Milano.
Working with Ph.D. candidate Loris Giulivi on developing a framework for black-box attacks in the three-dimensional space. Supervised by prof. Giacomo Boracchi.

2020-2021 **Research Collaborator.** Mis/disinformation diffusion. Politecnico di Milano.
I collaborated with Ph.D. Francesco Pierri on a research project focusing on the analysis of echo chambers and online disinformation. I developed a comprehensive system with Apache Airflow for data collection

and analysis, incorporating state-of-the-art language models for text analysis and a MinHash LSH approach to analyze the structural similarity of a large number of websites in a time-effective manner.

2018-2019   **Research Collaborator.** Logic Programming. Università di Ferrara.
Ealy High School research. Worked on hyperparameters optimization on the paper "Deep Parameter Learning for Probabilistic Logic Programming" with the Machine Learning Lab at the University of Ferrara, advised by prof. Fabrizio Riguzzi. Granted access to the CINECA supercomputer.

Academic projects

Adversarial Attacks
Improved the framework described in the paper "Adversarial Scratches: Deployable Attacks to CNN Classifiers" by Giulivi et al. by rewriting internal interfaces to increase system flexibility and enable more complex operations, added support for COCO 1.0 annotations, implemented new Bézier curves, and proposed an assisted polygon annotation tool for custom datasets based on an implementation of a pre-trained Mask R-CNN. Final grade: 28/30.

Time and Space Complexity
I was assigned as a part of an academic project to develop a text editor in C inspired by "ed". The program had to meet some space and time complexity requirements. Final grade: 30L/30 (full marks with honors).

VHDL Component Design
The goal of this project is to create a VHDL-based hardware component that can equalize image histograms. Final grade: 30/30 (full marks).

Distributed Java Game Design
The project entails the development of a Java game involving a distributed system comprised of a single server capable of managing several games and multiple clients. Final grade: 27/30.

Extracurricular Courses and Activities

Nov 2019 - Mar 2022   **President**. PoliMi Data Scientists, Politecnico di Milano.
Currently serving as "Honorary Member" upon unanimous vote of the Board of Directors. Previsouly held the position of "Secretary" and "Team Member". Managed legal status of the association, restructured the overall team organization, launched a monthly newsletter, maintained a positive cash flow to be reinvested within the association, and conducted collaborations with professors, companies and student organizations. PoliMi Data Scientists is the only accredited Data Science association at Politecnico di Milano. PMDS involves more than 900 students and 200 members, mostly MScs and PhDs. Themed events and workshops related to Data Science and ML are organized periodically. Notable corporate events with: Microsoft, Amazon, Bain & Company, McKinsey & Company's, Oracle, Eni S.p.A.

Mar - Jun 2021   **Natural Language Processing**. Tsinghua University, China (remote).
Selected among a competitive pool of students to participate in the Natural Language Processing graduate course at Tsinghua University as part of the GLOBAL MOOC ALLIANCE initiative between the institution and Politecnico di Milano.

2019 - 2020   **Head of Events**. PoliMi Chinese Students Association, Politecnico di Milano.
Organized a student networking event with Bocconi Chinese Students Association (Nov 2019, est. 150 participants). Managed the overall logistics of the PoliMi Winter Gala 2019, including venue negotiation and partnerships (Dec 2019, est. 2000 participants).

Certifications

Nov 2022   **TOEFL iBT**
Composite score: 107 (R29, L29, S25, W24).

Awards and Honors

Sep 2018 **AI*IA Travel Grant**
Awarded a travel grant by AI*IA (Italian Association for Artificial Intelligence) for early distinguished participation in AI research. The prize covered reimbursement of travel expenses and access to two major Inductive Logic Programming conferences (PLP 2018, ILP 2018), and a workshop (ACAI 2018).

Side projects

Jan 2021- **HESSIC**. https://hessic.com
Building a data science democratization platform. Planning to publish in Q1 2023.
Technology stacks used: Apache Airflow, React.js, Node.js, Express.js, MongoDB.

Sep - Nov 2021 **Automated Multi-strategic Crypto Trading**. Demo available upon request.
Built a Python framework that runs 24/7 on a Raspberry Pi for medium-frequency focused cryptocurrency trading on major exchanges. Leverage support; Trading based on real-time market data and quantitative signals.