

JOSHUA BERCICH

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OBJECTIVE

Over the past few years I have gained professional experience in software driven environments leveraging new technologies and research to face a variety of challenges such as automated drug discovery. Outside of work and my studies, I develop NLP, RL, and optimisation projects to produce innovative solutions to emerging problems and social issues. I look to utilise these concepts to address major challenges in a professional setting while showcasing and developing my skills. I also enjoy research and delving into new and difficult areas of science and technology keeping focus towards statistical analysis and machine learning.

EDUCATION

Kyoto Univeristy, Japan

Mar 2023 - Aug 2023

Kyoto Univeristy International Exchange Program

Sakyo-ku, Kyoto

- Semester exchange in fulfilment of undergraduate Bachelors at the University of Sydney. Recipient of the Australian New Colombo Plan Mobility Program.
- *Areas of study:* Japanese culture, history, and politics, statistics, material science, physics, chemical engineering, psychology, and computer simulation.
- *Activities and societies:* KUISC (International student committee), Cat-ch (Stray cat rescue), KIU (Soccer club), Downhill (Hiking club), KU Raku Raku (Sightseeing club), ATA (Tennis club), SFT (Study group).

Univeristy of Sydney, Australia

Feb 2019 - Nov 2023

Bachelor of Advanced Computing (Honours) / Bachelor of Science (Dalyell Scholarship)

Camperdown, NSW

- Undergraduate Bachelors degree with Honours from the Faculty of Engineering. Achieved high distinction in Honours thesis focussing on the use of Transformers for image segmentation in 360-degree Virtual Reality video data and the prediction of media spaces. Mentored students across faculties and participated in hackathons.
- *Areas of study:* machine learning, statistics, data analysis, systems programming, algorithmic analysis, optimisation, software development, project management, artificial intelligence, frontend development.
- *Activities and societies:* SUEUA (Engineering), SYNCs (Computer science), SUCES (Chemical engineering), SciSoc (Science), PhySoc (Physics), SUMS (Mathematics), SUDATA (Data science), USYD Dog Society.

St Joseph's College, Australia

Feb 2013 - Nov 2018

High School Certificate

Hunters Hill, NSW

- Competed in academic, debating, soccer, and tennis competitions. Participated in inter-school programs and supported students through peer tutoring sessions. Volunteered in disability charity programs.

EXPERIENCE

Junior Data Scientist

Dec 2021 - Present

Pending AI (Cheminformatics)

South Eveleigh, NSW

- Implemented retrosynthesis for reaction data reducing extractions from 10+ minutes to sub-second in Neo4j.
- Developed baseline GGMs and simple LLMs for comparative data analysis of production model performance.
- Construct pipelines for system-specific cheminformatics library compilation for different programming languages.
- Managed Neo4j database security mechanisms, internal procedures, cron jobs, ETL processes, and availability.
- Produced visualisations of results and certain metrics, leveraged realtime metrics for availability monitoring.
- Product-based PM in a scrum environment, team collaboration such as service communication protocols.

Software Engineer Intern
Deferit (Financial Technology)

Jun 2021 - Dec 2021
Sydney, NSW

- Automated backend system operations, customer bill payments, data visualisation and web interactions (Agile).
- Reviewed and improved the application codebase to assess optimal logic flow and structure for bottlenecks.
- Collaborated with separate teams in completing Jira tickets and Confluence documentation for new features.
- Constructed NLP frameworks (NER) for accurate bill information extraction and integration into the codebase.
- Used JavaScript and VBA for producing internal metrics and visualisations for non-technical teams.

SKILLS

Technical Skills	•••	Python, Java, R, Cypher, SQL, GH Actions, Unix, MongoDB, Neo4j, C.
	••◦	C++, TypeScript, JavaScript, HTML, CSS, Kubernetes, Cloud services.
	•◦◦	C#, Rust, Spring, Haskell, VBA, Cmake.
Soft Skills	Independent and collaborative team member, problem solving, interpersonal communication, innovative, inquisitive, committed and hard working.	

PROJECTS

- **Thesis: Deep Learning Media Space Generation for VR Video (2022):** Image segmentation Transformer for media space generation and attention ranked centroid predictions in 360° VR.
- **Investigating relationships between SES and biomarkers for Type 2 Diabetes (2022):** University group academic paper; responsible for statistical analysis for *large p small n* reduction and modelling.
- **KidneyExpress (2022):** University group project for an external client developing a Shiny app to support medical experts serving an SVM ensemble for gene expression predictors of kidney transplant patient risk.
- **MEDSUnited (2021):** University group project with an external client developing a React scene generation tool for Unity; demoed at Biosciences Education Australia Network 2021 Forum and used by students.

HONOURS & AWARDS

School of Computer Science Undergraduate High Honour Roll	May 2022
University of Sydney Academic Merit Prize	May 2022
Dean's List of Academic Excellence	April 2021

EXTRA-CURRICULAR ACTIVITIES

Computer Science Faculty Mentor <i>University of Sydney</i>	Feb 2020 - Feb 2021
<ul style="list-style-type: none">• Provide first-year Computer Science students support in their concepts of data structures and programming as well as provide advice on coding axioms and techniques during programming labs.	
Engo-Peer Mentor <i>University of Sydney</i>	Feb 2020 - Jun 2020
<ul style="list-style-type: none">• Responsible for leading a group of first-year engineers to build support networks and provide academic and administrative advice by resolving issues in their early studies.	
Peer Mathematics and English Tutor <i>St Joseph's College Hunters Hill</i>	Feb 2017 - Nov 2018
<ul style="list-style-type: none">• Support younger cohorts with assisted reading programs helping students with advancing to higher literacy grades. Tutor morning mathematics sessions for all cohorts with one-on-one supervision.	

INTERESTS

- Working on personal projects; game development, LLM for LP optimisation, dashboard web application.
- Baking different desserts from across the world; testing and logging new recipes.
- Training and competing in running marathons.