Nicholas Marks

Personal Information

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Work Experience

Jul 2021 - Now | **Monash Carbon Capture and Conversion (MC^3)**
Carbon Conversion Engineer

Working with MC^3 to produce a project entry to the 2021 XPRIZE Carbon Removal competition. My team is responsible for developing a carbon conversion solution centering around polymer synthesis. To this point we have submitted a proposal design to stage 1 of the competition which utilises an electroreduction of carbon dioxide into ethylene and then a gas-phase process to polymerise the ethylene into high-density polyethylene plastics. This forms the end pipeline of a full carbon conversion system that begins with a novel direct air capture (DAC) treatment of CO_2. MC^3 as a team spans several different campuses and countries and has constituted around a 10 hour commitment per week during university semester dates.

Mar 2021 - Now | **Monash DeepNeuron**
Project Member of HPC Team

I am an active member of the DeepNeuron engineering team at Monash University which specialises in Deep Learning and High-Performance Computing (HPC) solutions. In the first semester of 2021, I completed an 8-week training course on the basics of Deep Learning using PyTorch, as well as HPC fundamentals including the use of technologies like OpenStack, MPI, Intel MKL, Slurm and Reframe. In Semester 2 of 2021, I have worked on the project team competing in SC21 Competition. This has involved some assignment work including high-performance linpack (HPL) and high-performance computing grid (HPCG) benchmarks, as well as build-work on a handful of applications like Gromacs and John The Ripper. Globally, the team placed second overall in the entire competition.

Dec 2019 - Now | **Edrolo**
Physics Textbook Author

Edrolo is a technology startup dedicated to improving the quality of education in Australia. I work there as a co-author for the 1st edition of a Victorian Curriculum of Education (VCE) Units 1/2 (Year 11) Physics textbook as well as the 2nd edition of the Units 3/4 (Year 12) textbook, both of which were used in hundreds of classrooms across the state of Victoria. This role involved me writing lesson theory, questions and sample exams for the physical version of the textbook, as well as recording worked solutions and producing digital question sets for the online version. I had primary ownership of many of the digital deliverables, meaning I have learnt how to work well within a team, direct collective efforts in an effective manner, and work towards deadlines and targets.

Oct 2019 - Mar 2020 | **Foot Locker**
Senior Sales Representative

Worked as a sales representative for the Foot Locker at Chadstone Shopping Centre. I was responsible for managing Adidas product and leading the floor workers through the Christmas/holiday shopping period.

2014 - 2019 | **FIBA Basketball Official (A Grade)**
Referee and Stadium Supervisor

Trained as a basketball referee officiating games ranging from weekend domestic competitions to men's and U18 boys representative matches. I also worked as a stadium supervisor for these competitions as well, which involved training younger referees, ensuring smooth operation of matches and dealing with complaints from parents, players and coaches.

Education

2020 - Now	Bachelor of Science	Majors: Computational Science, Pure Mathematics, **Monash University, Victoria**
2020 - Now	Bachelor of Engineering (Honours)	Major: Electrical Engineering, **Monash University, Victoria**
2010 - 2019	**Scotch College**, Hawthorn, Victoria
2006 - 2010	**Lloyd Street Primary School**, Malvern, Victoria

Competitions

2021	Accenture MyWizardAiOps Bootcamp (2nd place)
	A one week coding intensive in teams of 5 to produce a full stack application catering to a particular user group. Our project took advantage of Amazon IoT devices and a serverless AWS cloud architecture to power a dashboard for bee farms monitoring a large number of hives.
2021	A-HUG Cloud Computing Hackathon (ARM Processors)
	A week long hackathon centred around HPC application porting and cloud optimization using Arm architecture. This involved being given one small and one large mystery application to performance tune through compiler, optimization and library flags, amongst other parameters.
2021	IndySCC21 (Student Cluster Competition)

Awards & Accomplishments

2018 - Dec 2019	**School Captain of Scotch College**
	This position is awarded to a student from the graduating class to be taken up as a full-time position the year after. As part of my duties I chaired the council of student captains for other Victorian schools, as well as being a board member of the school's alumni council.
Dec 2018	**Co-dux of school, Dux of Literature**
	Received the prize of co-dux for graduating with an ATAR of 99.95, as well as the prize for Year 12 Literature having received the best study score in the cohort.
Nov 2018 - Feb 2019	**SAGSE Scholarship for German Language Exchange**
	I was awarded 1 of 12 scholarships to Victorian students studying German to participate in a 3-month language and cultural exchange in Germany. Since returning, I have joined the alumni committee which facilitates future sponsorship of the awards, alumni events and hosting of German students in Australia.
	Australian Physics Olympiad
	Received an award of high-distinction for the Australian Physics Olympiad qualifying exam.

Languages

German: C1 Level (Goethe-Institut)

Software

Advanced: Python, JavaScript, React, NextJS, Gatsby
Middle: React Native, GraphQL, Django, C/C++, Node.js, Pytorch, MATLAB LaTeX
Novice: TensorFlow, Rust

Interests and Hobbies

Literature, playing the piano, rock-climbing, wood-working, basketball and running. I like to spend my time doing web-design, making a few blog/portfolio websites and some other small projects with friends.