

Guanguan Ke

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EDUCATION

Aug 2020 — Jun 2024	B.Eng in Mechanical Engineering, Nanyang Technological University GPA: 4.75/5.0 Specialized in Aeronautical Engineering	Singapore
Jan 2023 — May 2023	Exchange, Case Western Reserve University Aero/gas Dynamics; Aerostructures; Engineering Vibrations; Engineering Elements Design; Heat Transfer	Cleveland, USA
Aug 2021 — Dec 2021	Exchange, National University of Singapore Control Theory; Fluid Mechanics; Public Speaking and Critical Reasoning	Singapore

RESEARCH EXPERIENCES

Aug 2023 — Jun 2024	Final Year Project, Nanyang Technological University Performed computational analysis of Polignac's Conjecture to investigate the distribution of prime number pairs utilizing the Riemann Zeta Function. <ul style="list-style-type: none">I examined the First Hardy-Littlewood Conjecture. Albeit the good fitting, there are discrepancies with the prime counting pair function that require a better formula. Currently, I am in the process of developing a new model that has the potential to provide a better fit to the prime counting pair function.	Singapore
Jul 2022 — Dec 2022	Research Assistant, Singapore Institute of Manufacturing Technology (SIMTech) Project I: 3D printing of Zeolite molecular sieves using Direct Ink Writing (DIW) <ul style="list-style-type: none">A systematic study was conducted to understand the chemical composition and rheological properties of ceramic slurries employed in the 3D printing process. Various curing methods, such as thermal curing and UV curing, were explored. Assessments were performed to evaluate the mechanical properties and gas absorption capabilities of the end products. Project II: Material composition optimization for ceramic ring used in medical application <ul style="list-style-type: none">Analysis was performed on the failure of the current ceramic ring component in the market. Powder metallurgy process was carried out, including compaction, debinding, and sintering. The properties of the optimized products were examined using scanning electron microscopy (SEM), X-ray analysis, and other relevant techniques.	Singapore

PROJECTS

Jan 2022 — May 2022	Connecting People with Same Sense of Humor Completed as the capstone project for course <i>MA0218 Introduction to Data Science and Artificial Intelligence</i> <ul style="list-style-type: none">The analysis of Jester datasets utilizes machine learning techniques, mainly collaborative filtering and natural language processing (NLP), to create a social media platform blueprint that connects individuals with similar preferences in jokes.	Singapore
Jul 2021 — Jul 2021	FOODIE: A Blockchain-based Platform for Redistributing Food Waste Completed as part of the summer study program, <i>Deep Dive Into Blockchain</i> at University of Zurich <ul style="list-style-type: none">The solution is proposed to address food waste by improving its access to consumers and reducing administrative burdens for food providers. Ethereum platform and Solidity are chosen to develop the NFT system.	Zurich, Switzerland

INTERNSHIPS

Jan 2022 — Jun 2022	Thermo-Mechanical Development Intern, Philips Domestic Appliances Examined the thermal and mechanical properties of irons and steamers prototypes. Optimized the design of the soleplates and steam-generating system.	Singapore
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SCHOLARSHIPS AND AWARDS

Aug 2020 — Jun 2024	NTU Science and Engineering Undergraduate Scholarship	Singapore
Jul 2022 — Dec 2022	A*STAR Best Student Award, Nomination Nominated for the Best Student Award in recognition of outstanding performance during the research internship at SIMTech. The ceramic ring developed for project II is now in mass production.	Singapore
Aug 2021 — Jun 2022	Dean's List Top 5% of the cohort at School of Mechanical and Aerospace Engineering	Singapore
Oct 2021 — Oct 2021	Xilinx All Women IoT Hackathon, Runner-up Developed a self-driving car capable of route identification, obstacle avoidance, and parking using IoT technologies.	Singapore
Feb 2021 — Mar 2021	NCS Innolympics 2021, Semi-finalist Created a comprehensive blueprint for a home-based 3D printer designed specifically for producing plastic consumables.	Singapore

TEACHING EXPERIENCE

Aug 2021 — Dec 2021	Teaching Assistant, Nanyang Technological University MH1810 Mathematics I	Singapore
Jan 2022 — Sep 2023	Teaching Assistant, Nanyang Technological University MA3004 Mathematical Methods in Engineering: Partial Differential Equations (PDE); Finite Element Analysis (FEA); Computational Fluid Dynamics (CFD)	Singapore

EXTRA-CURRICULAR ACTIVITIES

Jun 2023 — Aug 2024	Vice President , NTU Aerospace Society Coordinated industrial site visits, conducted aeromodelling workshops, and hosted drone training sessions for fellow aerospace enthusiasts.	Singapore
Aug 2022 — Jan 2023	Peer Mentor, Nanyang Technological University Supported and guided year 1 and year 2 students in building their career readiness and exposed them to diverse career paths.	Singapore
May 2017 — Dec 2017	Co-Organizer, TEDxYouth@NFLS Topic: <i>Spiritual World</i> <ul style="list-style-type: none">I organized TEDxYouth event at my high school, collaborated with the US team, and spearheaded local initiatives for speaker invitations, sponsorships, and communication management.	Nanjing, China

SKILLS

Programming	C; Python; MATLAB; JavaScript; Machine Learning
Languages	Proficient in English and Chinese