ALEXANDER MICHAEL REAVES

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Aerospace Engineering Ph.D. student in the EPSRC CDT in Future Propulsion and Power at the University of Cambridge. 4+ years of scientific research experience. Strong technical expertise in turbomachinery, propulsor design, and physics-based modeling.

EDUCATION

University of Cambridge — Cambridge, UK
Ph.D. in Future Propulsion and Power (Aerospace Engineering) — October 2022 – Present

University of Cambridge — Cambridge, UK
M.Res. in Future Propulsion and Power (Aerospace Engineering) — October 2021 – August 2022

Yale-NUS College — Singapore
Bachelor of Science in Physical Sciences (Physics) — August 2017 – May 2021

Phoenix Country Day School — Arizona, USA
High School Diploma — August 2014 – June 2017

RESEARCH EXPERIENCE

Yale-NUS Physical Sciences Major — Yale-NUS College & University of Cambridge
Capstone Student — August 2020 – May 2021

- Conducted a yearlong research project modeling the interactions between granular flows and hydropower turbines.
- Met weekly with supervisors from the University of Cambridge and Yale-NUS College to present relevant findings.

NASA Ames Research Center — National Aeronautics and Space Administration
Summer Intern — June – August 2020

- Designed 3D models of components for the International Space Station using `Creo Parametric`.
- 3D printed and tested over 20 iterations of a CO_2 sensor which could be manufactured in space.

Yale-NUS Sciences Department — Yale-NUS College
Research Assistant for Professor Chelsea Sharon — June – August 2019

- Awarded funding of over SGD $3,000 from the J.Y. Pillay Global-Asia Programme to research the feasibility of radio astronomy data collection in Singapore.
- Designed, constructed, and wrote code for a 1420 MHz horn radio telescope based off of the Bessie radio telescope design from Open Source Radio Telescopes.

Centre for Advanced 2D Materials — National University of Singapore
Research Assistant — May 2018 – August 2019

- Awarded full funding of over SGD $3,000 from J.Y. Pillay Global-Asia Programme to research superconductivity in twisted bilayer graphene.
- Coded and ran over 20 different simulations using `MATLAB` and `Python` to determine the electronic band properties of superconductive twisted bilayer graphene.
- Presented relevant papers and research findings in group meetings and weekly journal clubs.
- Published results of research in *Solid State Communications*. This work has received over 60 citations.

OTHER PROFESSIONAL EXPERIENCE

Open Ventilator System Initiative (OVSI) University of Cambridge
Engineer / Engineering Coordinator March 2020 – June 2020

- Collaborated on designing and prototyping 3 different versions of an affordable, hospital-quality, ventilator system that is manufacturable and maintainable in low and middle-income countries.
- Managed information sharing and co-development between engineering groups in the United Kingdom, Kenya, Uganda, and Ethiopia.
- Received Presidents Special Award for Pandemic Service from Royal Academy of Engineering for contributions to addressing the challenges of the COVID-19 pandemic.

United Nations Office for Outer Space Affairs United Nations
Online Volunteer December 2018 – March 2019

- Researched the applicability og methodologies for wastewater recycling and water management to achieve UN Sustainable Development Goal 6: Sustainable Management of Water and Sanitation for All.
- Wrote scientific-communication articles which explain the potential applications of technologies designed for use in outer space for water management on Earth.

PUBLICATIONS AND PRESENTATIONS

Singlet superconductivity enhanced by charge order in nested twisted bilayer graphene Fermi surfaces Evan Laksono, Jia Ning Leaw, **Alexander Reaves**, Manraaj Singh, Xinyun Wang, Shaffique Adam, Xingyu Gu; Solid State Communications, Volume 282, Pages 38-44, October 2018
https://doi.org/10.1016/j.ssc.2018.07.013

Wastewater recycling on the ISS and in Singapore
Alexander Reaves; United Nations Office of Outer Space Affairs, Space4Water, February 2019
https://www.space4water.org/news/wastewater-recycling-iss-and-singapore

Magnetotransport properties in twisted bilayer graphene at magic angle
Evan Laksono, **Alexander Reaves**, Manraaj Singh, Xingyu Gu, Jia Ning Leaw, Nimisha Raghuvanshi, Shaffique Adam; American Physical Society, Abstract: S14.00010, March 2019
http://meetings.aps.org/Meeting/MAR19/Session/S14.10

HONORS AND AWARDS

President's Special Award for Pandemic Service 2020

- Award given to OVSI from the Royal Academy of Engineering for contributions to addressing the challenges of the COVID-19 pandemic.

JY Pillay Global-Asia Programme Research Award 2018 & 2019

- Received full funding to construct a radio telescope to test the suitability of Singapore's RF environment for radio astronomy observations during summer 2019.
- Received full funding to research superconductivity in twisted bilayer graphene during summer 2018.

TECHNICAL STRENGTHS

Computer Languages	`C, C++, MATLAB, Python`
Software & Tools	`Creo, LabVIEW, Mathematica, Microsoft Office`

Last Updated: September 10, 2022