# AMAIYA KHARDENAVIS

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## EDUCATION

**The University of British Columbia**, *Canada* — September 2019 - Present
*Master of Applied Science (M.A.Sc.)* in Mechanical Engineering

**University of Mumbai**, *India* — August 2014 - July 2018
*Bachelor of Engineering (B.E.)* in Mechanical Engineering

## RESEARCH EXPERIENCE

**Life Cycle Management Laboratory, UBC** — September 2019 - Present
*Graduate Research Assistant under Kasun Hewage* — *Canada*

· Working on a FortisBC supported project for modelling the charging infrastructure for electric vehicles using mobile energy hubs for demand side management based on the vehicle to grid (V2G) concept.

**Department of Energy Science & Engineering, IIT Bombay** — August 2018 - July 2019
*Research Assistant under Rangan Banerjee* — *India*

· Involved in an independent review of the ambitious Mumbai-Pune Hyperloop project in collaboration with Pune Metropolitan Development Authority (PMRDA). Performed a techno-societal assessment and determined the life cycle energy requirements for the corridor.

**Rapid Manufacturing Laboratory, IIT Bombay** — August 2017 - April 2018
*Project Intern under K.P Karunakaran* — *India*

· Conducted a literature and market survey to deem the feasibility of 3D printing for the manufacturing of drones. Implemented a computational topology optimization method on ANSYS Workbench 18.2 to develop a Micro Aerial Vehicle (MAV) using fused deposition modeling of ABS plastic. Carried out photogrammetry simulations on MeshLab to obtain land terrain area maps and models.

**Center for Propulsion Engineering, Cranfield University** — June 2017 - August 2017
*Visiting Researcher under Suresh Sampath and Theoklis Nikolaidis* — *United Kingdom*

· Investigated the effect of changing ambient conditions on the performance curves of turbojet, turbofan and turboshaft gas turbine engines. Simulated the performance of the Rolls Royce WR-21 intercooled and recuperative gas turbine engine for varying operating conditions and optimised the off-design parameters using Turbomatch (FORTRAN based software tool developed at Cranfield University).

**Gas Turbine Research Establishment, DRDO** — June 2016 - July 2016
*Summer Intern under S.V Ramanamurthy* — *India*

· Designed a single stage axial turbine at the design point using the mean line design technique in collaboration with the Turbine Group. Generated turbine blade profiles using the eleven parameter aerofoil geometry method.

**Heat Pump Laboratory, IIT Bombay** — Dec 2015 - January 2016
*Winter Research Intern under Milind Rane* — *India*

· Worked on the design of a heat exchanger system to maximise the heat capture for generating potable water by desalination of brackish water using waste heat from the condenser of an air-conditioning system.

## PUBLICATIONS

- **Khardenavis, A.**, Hewage, K., Perera, P., Shotorbani, A., Sadiq, R. Mobile Energy Hub Planning for Complex Urban Networks: A Robust Optimization Approach. (2020) *Journal of Cleaner Production.* Under Review.
- Hirde, A., **Khardenavis, A.**, Banerjee, R., Bose, M., Pavan Hari, V.S.S. Sustainability Analysis of the Hyperloop Transportation System (2020) *Sustainable Cities & Societies.* Under Review.
- **Khardenavis, A.**, Karunakaran R. Design and Development of a Light Weight Quad-copter using Optimization Techniques. (2018) *Proceedings of the Intl. Conference on Frontiers in Engineering, Applied Sciences and Technology (FEAST), National Institute of Technology, Trichy, India*

## RELEVANT COURSES

- **Graduate** - Alternative Energy Systems, Heating Ventilation & Air Conditioning, Life Cycle Assessment & Management, Environmental Risk Assessment Probability & Random Processes, Multicriteria Optimisation & Design of Experiments, Project Planning & Control, Construction Engineering Management
- **Undergraduate** - Mechanical Utility Systems, Thermal & Fluid Power Engineering, Renewable Energy Sources, Finite Element Analysis, Heat Transfer, Fluid Mechanics, Thermodynamics, Internal Combustion Engines, Strength of Materials, Machine Design
- **Online** - Getting Started with Python (Coursera), Python for Data Science & AI (Coursera), Politics & Economics of International Energy (Coursera), Energy & the Earth (Coursera), Introduction to Aeronautical Engineering (edX), Space Mission Design & Operations (edX)

## TECHNICAL SKILLS

- **CAD** - AutoCAD, Autodesk Inventor, SpaceClaim, SolidWorks
- **Analysis Tools** - Ansys Workbench, Ansys Mechanical APDL, MATLAB, Minitab
- **Coding** - Python, C, C++, HTML, Visual Basic, LaTeX, ILOG CPLEX

## AWARDS & SCHOLARSHIPS

- Awarded the University Graduate Fellowship, The University of British Columbia: 2020
- Awarded the Accelerate Fellowship, MITACS: 2019 - 2021
- Best Undergraduate Project Poster Presentation Award: 2018
- Best Undergraduate Thesis Award: 2018
- Awarded the Innovation in Science Pursuit for Inspired Research Scholarship, Govt. of India: 2014

## RESPONSIBILITIES

**School of Engineering, UBC** — September 2020 - Present
*Graduate Teaching Asssistant* — *Canada*

· APSC 252: Thermodynamics

**Artium Student Residence** — May 2020 - Present
*Residence Advisor* — *Canada*

· Advising students regarding their problems and enhancing student life by organizing monthly social events.

## REFERENCES


**Rangan Banerjee**
Professor & Head of Department
Energy Science & Engineering, IIT Bombay
*webpage* ◇ *email*

**Rehan Sadiq**
Professor & Associate Dean
School of Engineering, UBC
*webpage* ◇ *email*

**Suresh Sampath**
Director of Gas Turbine Systems & Operations
Cranfield University
*webpage* ◇ *email*

**Kasun Hewage**
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