

ABEL TOMY

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EDUCATION

Joint Dual Master's Degree in Tribology of Surfaces and Interfaces

Luleå University of Technology, Sweden.

Sept. 2023 - June 2024

University of Ljubljana, Slovenia.

Feb. 2023 - Aug. 2023

University of Leeds, UK.

Sept. 2022 - Feb. 2023

- Erasmus Mundus TRIBOS +, <https://www.master-tribos.eu>, Fully Funded by the European Union.
- Material Science, Numerical Simulations in Tribology with FEM, COMSOL Multiphysics, Advanced Machine Elements(design, function and interaction).
- Projects: Designing surface coatings for TENG(Triboelectric Nanogenerator) Sensor, Maintenance Engineering.

Post Graduate Diploma in Digital Fabrication

2020-2021

Center for Bits and Atoms, MIT Media Lab — Super Fab Lab Kochi, India.

- Documentation: <http://fabacademy.org/2021/labs/kochi/students/abel-tomy/>.
- Hands-on work with some of the most advanced digital fabrication machines. (Waterjet cutters, Laser cutters and engravers, Wire EDM, Multi-axis milling machines, CNC lathe machines, 3D printers - (FDM, SLA), Pick and place, Electronic testing equipment), Embedded programming, Electronic Design, Parametric 3D Modeling.
- Won FAME (Fab Academy Masterpiece Execution) Award 2021 for “[The Banana](#)” project.
- Awardee of KSUM(Kerala Startup Mission) funding.

Bachelor of Mechanical Engineering

2016-2020

APJ Abdul Kalam Technological University, Kerala, India.

- Awardee of the Prime Minister's Scholarship Scheme (PMSS) by the Central Government of India.
- Projects: Design and Development of Positive Engagement Variable Torque Transmission Mechanism Polymer gears.
- Thesis: Railway Wheel Axle House Bearing Shrink Fit Assistance- Design and optimise the loading of SKF 22326 CC/W33 spherical roller-bearing in collaboration with Indian Railways.

SKILLS

HARDWARE

Manufacturing: CNC (3-axis mill, lathe, waterjet, laser, EDM, Zund); Additive manufacturing (garden variety).
Metrology: SEM, FTIR, Raman Spectroscopy, AFM, 3D Interference Profilometer, Goniometer, 3D scanning.
Mechatronics: design and fabrication of robotic motion systems including actuation, power, sensors, end effectors.
Characterisation: SRVs, TriboTests, Instrumentation, data acquisition, and post-processing using large-scale mechanical testing platforms.

SOFTWARE

CAD/CAM: CATIA, SolidWorks, Fusion 360, Rhinoceros 3D(Grasshopper), Autodesk EAGLE(EDA)
FEA: ANSYS, native CAD simulation environments.
Programming: Python for data processing/simulation, MATLAB(numerical methods, CM), C++/Arduino for robotics, and processing.

Other Interests: Travelling, Hiking(eg: Camino de Santiago, French way, Himalayas). Photography, Hardware Projects(e.g. [P-CNC](#)). Wood Working, Startup Mentorship. Blogging: <https://abeltomy.com/>.

EXPERIENCE

Master Thesis Project

Vattenfall AB

Jan 2024 - June 2024

Luleå, Sweden

- Part of the R&D Wind portfolio within the team Lifetime and Operation focuses on the Impact of contaminants on blade bearings' lifetime. Work mainly on oscillating bearing lifetime.
- Focusing on fretting corrosion(SRV's for tribo-corrosion tests) and false brinelling.

Research and Business Development Consultant

Estro Tech Robotics and Innovations(Start-Up) <https://www.estrotech.in/>

Oct 2020 - Aug 2021

Remote-Kerala, India

- Bootstrapped a company initially focusing on the development of oxygen concentrates as a COVID-19 initiative, later into a B2B company specializing in AI, robotics, and IoT technologies.

Research Assistant Internship

Surface Interaction and Manufacturing Laboratory (SIAM) Lab, Indian Institute Of Science

Sep 2021 - Mar 2022

Bengaluru, India

- Characterisation of indigenously developed sustainable Green Cutting Fluid (GCF).
- Investigating fluid-solid interfaces and laser texturing to parameterize the wettability of alloys.

COO (Chief Operating Officer)

Innovation and Entrepreneurship Development Centre JEC (<http://iedc.jecc.ac.in/>)

Aug 2019 - June 2020

Kerala, India

- Inculcate entrepreneurial orientation, and interpersonal, leadership skills among students by organising workshops, invited lectures, project exhibitions etc. Idea Pitching Contest 2019 was one of them that allowed 5 projects funded by the Innovation Grand Scheme(<https://startupmission.kerala.gov.in/schemes/iedc>).
- Lead the workshops to students and provide them access to cutting-edge technology, high-quality mentorship, early risk capital and global exposure.

CFO (Chief Financial Officer)

Innovation and Entrepreneurship Development Centre JEC (<http://iedc.jecc.ac.in/>)

Aug 2018 - June 2019

Kerala, India

- The main responsibility is to keep track of funded projects and approve innovation Grands for the in-house projects.
- Setting up and managing the project team(s) and plan(s) to meet the project objectives (e.g. Safety, Budget, Scheduling).

Department Representative & Student Union Member

Mechanical Engineering JEC

Aug 2018 - June 2019

Kerala, India

- Served as an elected representative, acting as a liaison between professors and students, leading departmental initiatives and overseeing student welfare.

CSL Internship

CSL (Cochin Shipyard Limited)(<https://cochinshipyard.in/>)

June 2017 - July 2017

Kochi, India

- Rotations encompassed departments of training including ship repair, ship building, IAC (Indigenous Aircraft Carrier) visit, planning and production control, utilities and maintenance, inspection and quality control.

PROJECTS AND COLLABORATIONS

Fab AcadMini, CUSAT Fab Lab Lead 1-month hands-on learning experience on advanced manufacturing, design, fabricating, documenting, and sharing hardware projects [Link](#).

“DigiHealth” Erasmus+, University of Deggendorf, Bavaria, Germany Blended Intensive Program on AI and ML. Practice, Research, Ethics, and Regulation in AI applications.

Future Forward:GREEN; Ankara,Turkey In partnership with the Swedish NGO United Equality, is primarily focused on the implementation of circular economy practices.