Apoorva Sunil Chakkamallisery

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EDUCATION

Boston University *Sept 2025 - Expected May 2026*
M.Eng. in Biomedical Engineering *Boston, USA*
College of Engineering Graduate Scholarship, BME Master's Admission Ambassador.

Rangsit University *Aug 2019 - July 2023*
B.Eng. in Biomedical Engineering *Pathum Thani, Thailand*

EXPERIENCE

Grader, *Prof. Bela Suki* *Jan 2026 - Present*
College of Engineering, Boston University *Boston, USA*

- Graded assignments for the course BE567 Non Linear systems in Biomedical Engineering.

Research Assistant *Aug 2023 - Mar 2025*
Digital Cognitive Neuroscience Lab: Dr. Maro Machizawa *Tokyo, Japan*

- Collaborated with Hiroshima University on Project Moonshot (Aug 2023-Mar 2024) and later with the Institute of Science Tokyo (April 2024-Mar 2025), contributing to multiple ongoing studies under Dr. Maro Machizawa.
- Organized and led the data collection and pre-processing of over 50 EEG data acquisition using dry-electrode headsets, establishing a standardized pipeline that improved data acquisition procedure.
- Processed and analyzed biomedical data such EEG & ECG using MATLAB, Python and EEGLAB, applying signal processing and statistical analysis to extract relevant features for ongoing projects and papers.

Product Specialist Trainee *Jan 2023 - May 2023*
Surgical Technology - Aesculap, B Braun Group Ltd. *Bangkok, Thailand*

- Supported operating room workflows during surgical product demonstrations, including instrumentation setup, equipment checks, and case preparations.
- Assisted a product specialist in demonstrating surgical products during multiple events and surgeries at hospitals across Thailand, leading to successful product evaluations and increased product adaptations by surgeons.

PROJECT

Improved Methods for Cerebral Spinal Fluid (CSF) management *Sept 2025 - Present*

- Executed a multi-phase medical device development project (Discovery-Deployment), completing 50 hours of neurosurgery clinical immersion at Boston Medical Center to identify unmet needs through clinician interviews and direct surgical observation (VoC insights).
- Synthesized clinical and stakeholder input into 12 problem statements and user needs, leading to selection of the final project concept validated through clinical and industry mentor design reviews.
- Executed design control activities by co-developing the PDS and RTM, maintaining traceability across user needs, design inputs/outputs and V&V in alignment with FDA 510(k) and EU MDR requirements.

PUBLICATION & RESEARCH AWARD

Mind to Motion: EEG-Based Classification of Motor Imagery and Actual Hand Movements Using LSTM Models, *15th Biomedical Engineering International Conference (BMEiCON), Tokyo, Japan, 2023.* **[LINK]**

SKILLS

- **Medical Device Development Design:** Medical device development (concept to design), Clinical needs assessment (VOC clinician interviews), Human centered design, Product Mapping, PDS, DHF, Early stage prototyping, CAD (onshape), 3D printing.
- **Regulatory, Quality and manufacturing:** ISO, FDA 510 (k), EU MDR, Validation and verification, Manufacturing (DFM), IP, Commercialization, Go-to-market Strategy.
- **Engineering Methods and Analysis:** Structured design processes (Waterfall. Agile, Six Sigma, Iterative), Design Thinking (SCAMPER, Morphological analysis), Failure analysis and root cause analysis (5 whys).
- **Software, Data analysis and Collaboration:** MATLAB, Python, Github, HTML, CSS, Microsoft Office, SAS studio, SPSS, Figma, Concept selection (Pugh).