Bai Yunpeng

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Education

- **National University of Singapore** — Singapore, Singapore
  3rd Year PhD Student - Computer Science; Supervised by Prof David Hsu — *Jan 2022 - Jan 2026 (Anticipated)*
  Core Courses: *Advanced Topics in HCI, Information Visualization, Knowledge Discovery and Data Mining, Neural Networks and Deep Learning, Advanced Topics in IoT, Advanced Topics in AI*

- **The University of Melbourne** — Melbourne, Australia
  Bachelor Exchange - Mechanical Engineering; WAM: 82.6/100 (First Class Honor) — *July 2019 - June 2020*
  Core Courses: *Numerical Programming for Engineers, Systems Modelling and Analysis, Control System, Introduction to Machine Learning, Programming and Software Development*

- **Beijing Institute of Technology** — Beijing, China
  Bachelor of Engineering - Mechanical Engineering; WAM: 87.5/100 (Top 5%) — *July 2016 - June 2019*
  Core Courses: *Mechanical Design, Mechanisms and Machine Theory, Mechanical Drawing, Calculation Method, Theoretical Mechanics, Mechanics of Materials, Fluid Mechanics, Thermodynamics, Mechanics and Materials*

Skills Summary

- **Languages**: Python, Matlab, C++, JAVA
- **Specialists**: Reinforcement Learning, Deep Learning, Machine Learning, Signal Processing, Mechanical Engineering
- **Tools**: GIT, MuJoCo, AutoCAD, CAE, Solidworks, UG
- **Soft Skills**: Diligence, Fast Learning, Leadership

Papers

- **CHI '24, Heads-Up Multitasker: Simulating Attention Switching On Optical Head-Mounted Displays**
  Yunpeng Bai, Aleksi Ikkala, Antti Oulasvirta, Shengdong Zhao, Lucia J Wang, Pengzhi Yang, Peisen Xu

Individual Projects

- **Cognitive Workload Classification using Wavelet-based Features**
  Estimating Cognitive Workload in changing luminance Conditions — *Aug 2022 - Present*
  We develop a novel feature engineering method aimed at improving the performance of cognitive workload classification. We introduced a streamlined approach that solely utilizes one-dimensional time-series pupil diameter data to estimate cognitive workload. Our method involves pre-processing the time-based data using wavelet analysis and leveraging the decomposed coefficients as features for training machine learning/deep learning classification models. Preliminary results demonstrate that our method surpasses prior approaches in achieving accurate classification across four levels of cognitive workload. This advancement enhances dynamic cognitive workload measurements, particularly in mobile settings with scenarios involving changing luminance conditions.

Honors and Awards

- **NUS SoC Research Incentive Award**
  This award is given to NUS students who have demonstrated good academic standing and research progress. — *2023*

- **Melbourne Graduate Scholarship**
  It is offered to high achieving international students in recognition of their excellent academic results — *2020*

- **2 × China National Scholarship**
  Highest scholarship given by Chinese government, top 1 % — *2017, 2018*

- **4 × First; 1 × Second; 1 × Third Class BIT SoM Scholarship**
  Semester scholarship given by school of mechanical engineering, BIT — *2017 to 2019*

- **Ranked 1000 in National College Entrance Exam (Gaokao), ShanXi Province**
  Scores 631/750, top 0.3% — *2016*

Leadership and Community Activities

- **NUS SSI Monthly AX Talks**
  Coordinator and Host — *Feb 2022 to Present*

- **NUS SSI 2023 Retreat**
  Organizer and coordinator — *Aug 2023*

- **NUS HCI 2022 Retreat**
  Organizer — *Nov 2022*

- **Italy Monsarrat Foundation - BIT Summer Social Research**
  Team member, School Research Group Leader — *Aug 2018*