

Ahsan Habib



Educator. Engineer. Researcher.

Profile

Senior full-stack developer, university educator and PhD candidate in computer science. More than eight years building learning and assessment systems; teaching since 2013; IEEEExtreme team lead, twice 1st in Malaysia. Proprietor of PearlHelix, an independent systems and advisory venture.

Contact

ahsan@pearlhx.com

Malaysia

[+60 11 5117 1332](tel:+601151171332)

Bangladesh

[+880 1717 560450](tel:+8801717560450)

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[Google Scholar](#)

[ORCID](#)

01 Professional experience

Senior Full-Stack Developer · Independent contractor

BrainCore Sàrl · 2018–present

Joined BrainCore in Kuala Lumpur in January 2018 as a web development intern; full-stack developer from October 2018, continuing remotely with the Swiss company. Develop and maintain learning and assessment systems, including ELIA, across React, Node.js, Python and MongoDB.

- Connect content, assessment, access control, analytics and reporting across interfaces, APIs and data.
- Investigate production behaviour and maintain long-lived systems using Git, Linux and Docker.

Proprietor

PearlHelix Systems and Advisory · 2026–present

Building an independent venture in learning and development advisory, technology consultancy and software development.

- Define needs and scope, then connect advice, technology choices and implementation.

Graduate Research Assistant

Universiti Malaya · 2016–2021

Developed research tools for programming education and machine learning for cultural heritage, including physical-game activities and 3D Kendi classification and retrieval.

- Contributed to conference and journal publications, research implementations and project reports.

Software Developer · Freelance

Garrison Cyber Consultancy · Oct 2016–Dec 2017

Developed and managed web software, including API-based market-rate updates for a cryptocurrency portal.

Senior IT Officer

North South University Library · Dec 2015–Aug 2016

Supported the library's RFID system and database administration.

Research and *selected work*



Questions, methods and published contributions

I am interested in what makes a machine-learning result useful and trustworthy: the question being asked, the data behind the comparison and the resources spent to reach it. Earlier work in education and cultural heritage still shapes these questions.

02 Published work

2021 · Journal article

Analyzing students' experience in programming with computational thinking through competitive, physical, and tactile games: the quadrilateral method approach

Habib, Mohammad Ahsan; Raja-Yusof, Raja-Jamilah; Salim, Siti Salwah; Sani, Asmiza Abdul; Sofian, Hazrina; Abu Bakar, Aishah.

Turkish Journal of Electrical Engineering and Computer Sciences, 29(5), 2280–2297.

[Publication record](#)

2017 · Conference paper

Enhancing understanding of programming concepts through physical games

Raja Yusof, Raja Jamilah; Habib, Ahsan.

Learning Innovation and Teaching Enhancement Research Conference (UM-LiTeR), Kuala Lumpur, 15–16 March 2017, pp. 39–40.

[Publication record](#)

2016 · Conference paper

ShonaBondhu: a cloud based system to handle flash flood

Ahmed, Nova; Azad, A. K.; Khan, Mahmudur Rahman; Habib, Ahsan; Ghosh, Shuvashish; Shahid, Sabiha.

2016 International Conference on Networking Systems and Security (NSysS), pp. 1–6.

[Publication record](#)

03 Selected research contributions

Physical games for programming education

Designed and evaluated physical learning activities and developed a recommender during master's research. This work led to a conference paper, a journal article and shared Gold Award recognition.

3D cultural-heritage classification and retrieval

Developed machine-learning pipelines for classification and retrieval of 3D Kendi artefacts, comparing representations and methods under different dataset sizes.

ShonaBondhu flood-warning research

Contributed within the North South University research team to a cloud-based system combining water-level sensing and server-side processing; co-authored the 2016 NSysS paper.

Teaching and *education*



Classrooms, laboratories and the degrees behind them

Teaching approach

Make the idea tangible

Move between explanation, worked examples and practical activity so that an abstract concept has something concrete to connect to.

Make room for the reasoning

Ask learners to explain their choices, trace intermediate steps and test assumptions, rather than only arrive at an answer.

Use practice as feedback

Let exercises and assessment reveal what needs another explanation, a different example or more independent practice.

04 University teaching

Part-Time External Lecturer

Universiti Malaya · Faculty of Business and Economics · Semester 2 · 2025/2026 · Completed

Delivered lectures, tutorials and practical activities in Programming Tools for Economics, with assessment design and student consultation.

Lab Instructor

North South University · Electrical and Computer Engineering · 2015–2016

Practical teaching, learning materials, laboratory assessment and student project support. Programming Language I; Data Structures and Algorithms; Digital Logic Design; Assembly Language; Control Systems; Numerical Methods.

Undergraduate Teaching Assistant

North South University · 2013–2014

Tutorial assistance, grading, office hours and support for students learning engineering foundations. Electrical Circuits; Digital Logic Design; Engineering Mathematics.

05 Education

PhD in Computer Science · Candidate

Universiti Malaya · 2020–present

Automated machine learning, search stopping, evaluation validity and computational-resource reporting.

Master of Computer Science

Universiti Malaya · 2019

Thesis: A Recommender of Physical Games for Learning Programming and Computational Thinking.

BSc in Electrical and Electronics Engineering

North South University · 2015

Cum Laude. Second major in Computer Science and Engineering.

Leadership and *recognition*



Community, competition and the tools of the work

Technical capabilities

Software and data

Python · JavaScript · C/C++ · Java · PHP · SQL · R · Assembly · React · Node.js · Express · REST APIs · OAuth2 · MongoDB · MySQL · MariaDB · SQLite · Git · GitHub · GitLab · Docker · Linux

Research methods and tools

Automated machine learning · Hyperparameter optimisation · Classification · Regression · Recommendation · Experimental design and evaluation · scikit-learn · pandas · SciPy · Jupyter · MATLAB · LaTeX

Teaching and delivery

Lecture and laboratory delivery · Assessment design and marking · Student consultation · Practical learning activities · Technical explanation · Research and project reporting

Computer science foundations

Data structures and algorithms · Algorithmic problem-solving · Programming fundamentals · Computational thinking · Computer architecture · Digital logic

06 Leadership and recognition

IEEE Malaysia Section Lead · IEEEExtreme 20.0

2026

National coordination and communication with student branches and the IEEEExtreme programme.

IEEEExtreme team lead · Universiti Malaya

IEEEExtreme · 2020–2025

Led Universiti Malaya teams: 1st in Malaysia in 2021 and 2023; 2nd in 2022 and 2024; 3rd in 2025; 4th in 2020.

YEAR	EDITION	PLACEMENT IN MALAYSIA	
2025	IEEEExtreme 19.0	3rd	
2024	IEEEExtreme 18.0	2nd	Official ranking
2023	IEEEExtreme 17.0	1st	Official ranking
2022	IEEEExtreme 16.0	2nd	Official ranking
2021	IEEEExtreme 15.0	1st	Official ranking
2020	IEEEExtreme 14.0	4th	Official ranking

Webmaster

IEEE WIE · Universiti Malaya · 2021–2023

Technical management of the group's online platforms.

Gold Award · Shared research recognition

LiTeR

Shared recognition with Raja Jamilah Raja Yusof for physical games in programming education.

[Award record](#)

07 Working principles

01 Understanding before answers.

02 Make the abstract tangible.

03 A result is only as honest as its comparison.

04 Knowing when to stop is a skill.

05 Technology should leave people more capable.

06 Build for the person at the other end.