

# Kavinda Athapaththu

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## Education

- 2016 – 2020 **University of Colombo School of Computing** BSc. (Hons.) Information Systems  
GPA 3.54, First Class
- 2000 – 2013 **Maliyadeva College, Kurunegala** Physical Science  
Z Score 1.2

## Research Publications

- 1 **Kavinda Athapaththu**, Shiwei Chen, Yuan Fang, Sanchali Mitra, Yee Sin Ang, & Yong Wang. (2025). Semiconlens: Visual analytics for 2d semiconductor discovery discovery. In *Ieee transactions on visualization and computer graphics (ieee vis 25)*. Under Review.
- 2 Manusha Karunathilaka, Shaolun Ruan, Linping Yuan, Jiannan Li, Zhiding Liang, **Kavinda Athapaththu**, ... Yong Wang. (2025). Intuit: Explain quantum computing concepts via ar-based analogy. In *Sigchi conference on human factors in computing systems (chi lbw 2025)*. Accepted.
- 3 Nilukshan Krishnaram, Juzly Ahamed, Nitharshana Sathyamoorthy, Damitha Sandaruwan, & **Kavinda Athapaththu**. (2023). Skeletal point analysis to determine the accuracy of forehand smash shots played by badminton players. In *Journal of the national science foundation of sri lanka* (Vol. 51, pp. 125–142).  
🔗 doi:10.4038/jnsfsr.v52i1.12141
- 4 Purushoth V., Piyathilake V., **Athapaththu K.**, Sandaruwan D., Hettiarachchi E., & Sayakkara A. (2023). Using multispectral uav imagery for marine debris detection in sri lanka. In *8th international conference on information technology research (icitr)* (pp. 1–6). 🔗 doi:10.1109/ICITR61062.2023.10382866
- 5 W.M.U. Fernando, K.D. Sandaruwan, & **A.M.K.B. Athapaththu**. (2023). Taekwondo poomsae movement evaluation using skeleton points. In *Journal of the national science foundation of sri lanka* (Vol. 51, pp. 143–156).  
🔗 doi:10.4038/jnsfsr.v52i1.11986
- 6 **Athapaththu A. M. K. B.**, Perera S. M., G., & Fernando M. G. N. A. S. (2020). Forecasting better prices for trip packages based on historical sales data and related factors: In the context of europe railway tourism. In *2020 20th international conference on advances in ict for emerging regions (icter)* (pp. 238–243).  
🔗 doi:10.1109/ICTer51097.2020.9325480

## Employment History

- 2024 Jul – Present **Research Engineer**, Nanyang Technological University, Singapore
- 2024 Jan – 2024 Jun **Research Engineer**, Singapore Management University, Singapore
- 2021 Nov – 2023 Dec **Lecturer (Probationary)**, University of Colombo School of Computing
- 2020 Oct – 2021 Nov **Temporary Assistant Lecturer**, University of Colombo School of Computing
- 2020 Mar – 2020 Oct **Temporary Instructor**, University of Colombo School of Computing
- 2018 Aug – 2019 Feb **Research Assistant Intern**, Modeling and Simulation Research Lab, University of Colombo School of Computing
- 2016 – Present **Freelancing Web Developer**,  
Portfolio [www.ksoftlabs.lk](http://www.ksoftlabs.lk)
- 2017 – Present **Freelancing Python Developer**,  
Portfolio [www.fiverr.com/share/roAqQN](http://www.fiverr.com/share/roAqQN)






## Qualifications

2022 Jan – 2023 Jun	■ <b>Staff And Educational Development Association (SEDA), UK</b> A SEDA Recognised Teacher
	■ <b>Staff Development Centre, University of Colombo</b> Certificate in Teaching in Higher Education (CTHE)
2022 Feb	■ <b>IELTS Academic - 8.0</b> Listening 9.0 Reading 9.0 Writing 7.0 Speaking 8.0 CEFR Level C2
2024 Jul	■ <b>GRE General Test</b> Verbal Reasoning - 156 Quantitative Reasoning - 160 Analytical Writing - 3.0
2020 Oct – 2020 Dec	■ <b>Staff Development Centre, University of Colombo</b> Making Teaching Effective (MaTE)
2015	■ <b>Chartered Institute of Management Accountants (CIMA)</b> Co1 Fundamentals of Management Accounting Co3 Fundamentals of Business Mathematics Co4 Fundamentals of Business Economics






## Research and Projects

- 2024–2025 ■ **Visual Analytics for Semiconductor Discovery**  
This research focuses on leveraging visualizations for semiconductor discovery. The findings of this research are under review in IEEE VIS 2025.
- **Intuit: Explain quantum computing concepts via ar-based analogy**  
The major research problem addressed in this study was the difficulty novices face when trying to understand fundamental quantum computing concepts due to their abstract and counterintuitive nature. In this study, an analogy-based characterization framework was developed to map core quantum concepts (e.g., qubits, output state duality, probability) to everyday objects, and an AR-based prototype system—Intuit—was created using situated analytics to illustrate these concepts. Both the framework and the prototype were evaluated with the help of domain experts and end-users, and the results demonstrated that Intuit significantly improved learners' comprehension of complex quantum ideas in a more intuitive and engaging manner.
- 2023 ■ **Multi-spectral image-based trash detection and classification on marine water bodies**  
The work presented in this study utilizes multispectral UAV imagery to monitor marine debris in a coastal area of Ambalangoda, Sri Lanka. For the automated detection of marine debris in captured images, this work replicates the state-of-the-art CutPaste method for region detection and utilized the ResNet-18 model with Faster R-CNN for the final classification of marine debris instances. The implemented approach demonstrated a classification accuracy of approximately 60% in automatic marine debris detection, laying the groundwork for potential enhancements in the future.
- 2022–2023 ■ **Taekwondo Poomsae movement evaluation using skeleton points**  
The major research problem addressed in this study was the issue of subjectivity in the domain of Poomsae evaluation using traditional methods. In this study, Taekwondo movements were evaluated using two different models; A Dynamic model and an LSTM-based ML model. Both models were evaluated with the help of domain experts and it was found out that the dynamic model performed better in classifying correct and incorrect poses than the ML model.
- **Skeletal model analysis to determine the accuracy of smash shots played by badminton players**  
The objective of this research is to evaluate Badminton smash shots so that players can improve their playing style. A dynamic model and a ML model using Random Forest Classifier were produced, and evaluated. In addition to this the dynamic model was adapted to be able to compare the performance of two players.






## Research and Projects (continued)

- 2019 – 2020  **Forecasting better prices for Flam Railway trip packages**  
As the undergraduate final year project, the aim of this research was to study and analyze different machine learning approaches for price forecasting and create a hybrid model for forecasting better prices to maximize the revenue. Model was created in Python using Keras, TensorFlow, sklearn and statsmodels. The average theoretically estimated increase in revenue for the hybrid model was 79.25%.
- 2018 – 2019  **Drone pilot training simulation research**  
This research was carried out to establish a machine learning approach which will generate superior results than a mathematical model. Technologies used were Keras, TensorFlow and Microsoft AirSim. A 3DR Solo drone was used for data collection.
-  **Fraud detection in finance**  
Several machine learning approaches were tested on the dataset obtained from Kaggle, "Synthetic data from a financial payment system" (<https://www.kaggle.com/ealaxi/banksim1>). It was found that Autoencoders produced a test accuracy of 91%. Furthermore it was discovered that XGBoost produce better results over KNN.
- 2017 – 2018  **Portals**  
As the second year undergraduate project a web portal was developed to provide information about Soma Cube. Technologies used were HTML, CSS, JS, PHP and Unity.
- 2019 – Present  **Mobile games and apps**  
<https://play.google.com/store/apps/dev?id=7212642260519472072>  
Mobiles games and applications developed for Game Jams and as a hobby


## Experience

- 2020 – 2023  **Teaching**  
As a lecturer, assistant lecturer and instructor, I conducted variety of lectures, tutorials and practicals. Main courses were Computer Systems, eBusiness Strategy, eLearning and Instructional Design, Enterprise Applications, ERP Systems, Game Development, Graphics II, Laboratory II, Rapid Application Development.
-  **Supervising**  
As a staff member in University of Colombo School of Computing, I am involved in supervising several undergraduate group projects; both 2nd year and 3rd year and co supervising research projects. Furthermore, I have supervised industry placement projects for undergraduates.
- 2020 – 2024  **Reviewing Research Papers**  
I contributed as a reviewer for CHI'24 organized by Association of Computing Machinery (ACM) and ICTer conference organized by University of Colombo School of Computing. I mainly reviewed papers related to visualization, HCI and, machine learning and its applications.
- 2020  **3D modeling and Mapping**  
I was involved in preparing virtual tour of Colombo University Computer Museum (<https://emuseum.ucsc.cmb.ac.lk/>). Several historical equipment were scanned using LiDAR technology and refined using Blender.
- 2020 – Present  **Knowledge Sharing**  
I've contributed to several session organized by different organization as a resource person to share my knowledge. I also maintain a blog at [www.ksoftlabs.com](http://www.ksoftlabs.com) to share my knowledge on various subject areas.
















## Skills

- Languages  English (Fluent), Sinhala (Native), Tamil (Fair)
- Coding  Python, PHP, R
- Databases  MySQL, MongoDB
- Web Dev  HTML, CSS, JavaScript
- Graphic  Adobe Photoshop, Adobe Illustrator

## Skills (continued)

Misc.      Academic research, teaching, training, L<sup>A</sup>T<sub>E</sub>X typesetting and publishing.

## Affiliations

2025	 <b>Webmaster</b> , IEEE R10 Innovation Challenge
2024–2025	 <b>Web Specialist</b> , IEEE Region 10 Young Professionals
2023 – 2025	 <b>Webmaster</b> , IEEE Region 10 Newsletter
2024	 <b>Reviewer</b> , CHI’24
2022-2024	 <b>Webmaster</b> , IEEE Region 10 Robotics Competition
2022	 <b>Track Chair</b> , Human Computer Interactions and <b>Reviewer</b> at ICTer 2022
	 <b>Technical Program Committee Member</b> , International Conference of Advances in Technology and Computing 2022 (ICATC 2022)
2021	 <b>Track Chair</b> , Applications of IT and <b>Reviewer</b> at ICTer 2021
2021 – 2022	 <b>Editor</b> , IEEE Young Professionals Sri Lanka
	 <b>Vice Chair and Webmaster</b> , IEEE IAS Sri Lanka Chapter
2020	 <b>Web and I.T. Chair</b> , IEEE PES Global Student Congress
2018 – 2020	 <b>Webmaster</b> , Sri Lanka IEEE Section Student Activities Committee (SAC)
2018 – 2019	 <b>Member of Executive Board</b> , UCSC ISACA Student Group
2016 – 2017	 <b>Organizing Committee Member</b> , iCS Codelab, iHack and iFest organized by UCSC ISACA Student Group
2016	 <b>Mentor</b> , Google Code-In

## References

References available upon request