

MD KHALEQUZZAMAN CHOWDHURY SAYEM

Current Location: Ulsan, Korea

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EDUCATION

Ulsan National Institute of Science & Technology Sep 2023 – Present
Masters in Computer Science and Engineering Ulsan, Korea

Ulsan National Institute of Science & Technology Sep 2019 – Aug 2023
Bachelor in Industrial Engineering Ulsan, Korea

RELEVANT PUBLICATIONS AND PROJECT (* denotes equal contribution)

- E. Ismayilzada*, **K. Sayem***, Y. Y. Tiruneh, M. T. Chowdhury, M. Boboev, and S. Baek. QORT-Former: Query-optimized Real-time Transformer for Understanding Two Hands Manipulating Objects. **Accepted at AAAI 2025**. Project Page: <https://kcsayem.github.io/QORT-Former/>
- M. Chowdhury*, **K. Sayem***, Y. Y. Tiruneh, B. Bhattarai and S. Beak, “Towards Fine-Grained Text Generation from 3D Hand Geometry for Hand Mesh Reconstruction. (Under Review)
- **K. Sayem**, E. Fozilov, M. Chowdhury, “4D Instruct-GS2G: Editing 4D Gaussians using text instructions.”. The project was conducted during the 3D Computer Vision Class at UNIST. (Report, Code)

RELEVANT WORK EXPERIENCES

Vision & Learning Lab  Jan 2023 – Present
Research Assistant UNIST, Ulsan, Korea

- Designed a geometry-based captioning pipeline linking 3D hand geometry to natural language, improving hand mesh reconstruction accuracy by 14% (Under Review).
- Developed QORT-Former, a query-optimized transformer, achieving state-of-the-art accuracy (+20%) and doubling inference speed for real-time 3D hand-object pose estimation (**AAAI 2025**).
- Improved AP by 3.7% for Image Segmentation with RGB and Thermal Image Fusion using GAN. **Undergraduate Thesis** ([Report link](#))

Machine Learning & Vision Lab  Sep 2021 – Feb 2022
Research Assistant UNIST, Ulsan, Korea

- Explored augmentation techniques to improve accuracy of **2D Human Pose Estimation** model **HRNet** [github link](#).
- Boosted 0.1% accuracy of baseline **HRNet** on **COCO** dataset by using the idea explained in the paper, “**How Robust is 3D Human Pose Estimation to Occlusion?**”.

Statistical Decision Making Lab  Dec 2020 – Aug 2021
Research Assistant UNIST, Ulsan, Korea

- Reduced computational cost of news article recommendation system by parallelizing **bandit algorithms** (LinUCB and Thompson sampling). [github link](#)
- Acquired funding for the project from UNIST Innovative Education Center.
- Implemented the parallelized version of LinUCB.
- Achieved 3.48 times and 2 times acceleration in parallelized version of LinUCB and Thompson Sampling compared to their sequential counter part. (Experimented on Yahoo R6A dataset.)
- Presented the poster of the outcome of the project in a fair organized by UNIST.

TECHNICAL SKILLS

Languages: Python, C++, C

Technologies/Frameworks: Numpy, Scikit-learn, Pandas, OpenCV, Tensorflow, Pytorch, Networkx, Linux, Git

TEACHING ASSISTANT EXPERIENCES

Introduction to AI Programming in Python

- **Instructor:** Professor Michael Jon Burrell
- **Semesters:** Fall 24, Spring 24, Fall 23

Discrete Mathematics

- **Instructor:** Professor Michael Jon Burrell
- **Semester:** Fall 24

Advanced Computer Vision

- **Instructor:** Professor Seungryul Baek
- **Semester:** Spring 24

LEADERSHIP

PAIS- Partnership for AI and Society

Jan 2021 – Present

President

UNIST

- Initiated a club with the help of **Prof. Bradley Tatar** & students associated with AI research or interested in AI to discuss the risk of AI in our society and how can it be prevented.
- Organized forum and talks to improve awareness on *Data Privacy* among UNIST students.

HONORS & AWARDS

Graduate School Scholarship

Funded By: Korean Government

- The scholarship covers the tuition fees, meal plan & monthly stipends for two years of masters.

UNIST Dream Scholarship

Issued By: UNIST

- The scholarship covers the tuition fees, meal plan & monthly stipends for four years of bachelor.

Acquired \$5K funding through AI Challengers Program(AICP)

Issued By: UNIST Innovative Education Center

- The award is given upon the completion of the project “Parallelization of bandit algorithms to reduce the computational cost of news article recommendation system.”

REFERENCES

Professor Seungryul Baek

Supervisor

Masters

- **Personal website:** <https://sites.google.com/site/bsrvision00/>
- **Affiliation:** Associate Professor, Artificial Intelligent Graduate School (AIGS), UNIST, South Korea
- **Affiliation:** Associate Professor, Department of Computer Science and Engineering, UNIST, South Korea
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Professor Binod Bhattarai

Co-supervisor

Masters

- **Personal website:** <https://sites.google.com/view/bbinod/home>
- **Affiliation:** Lecturer, University of Aberdeen, Aberdeen, UK
- **Affiliation:** Honorary Lecturer, University College London, UK
- **Email:** binod.bhattarai@abdn.ac.uk