PATARA TRIRAT

Ph.D. Student

Affiliation: Data Mining Lab, School of Computing,
Korea Advanced Institute of Science and Technology (KAIST)
Contact: E3-1 Bld. Room #2442, 291 Daehak-ro, Yuseong-gu, Daejeon 34141
patara.t@kaist.ac.kr | LinkedIn | GitHub | Google Scholar | Homepage

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RESEARCH INTERESTS

Data Mining and Analysis, Automated Machine Learning (AutoML), Intelligent Learning Systems, Continual Learning, Web Development

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EDUCATION

AUGUST 2020 — PRESENT / DAEJEON, SOUTH KOREA
KAIST
Ph.D in School of Computing, GPA: 4.18 / 4.30
Advisor: Prof. Jae-Gil Lee
Undergraduate Student Research Mentoring:
+ Mr. Phatarapran Saraluck
+ Mr. Wirittipol Supdateyarnnakorn

Academic Services:
+ **Journal Reviewer**: IEEE T-ITS 2022~, IEEE TNNLS 2023~, IEEE TMC 2023~
+ **Conference Reviewer**: KDD 2023

AUGUST 2018 — AUGUST 2020 / DAEJEON, SOUTH KOREA
KAIST
M.S. in Knowledge Service Engineering (Currently, Data Science), GPA: 3.80 / 4.30
Thesis: Analysis of Dangerous Driving Behavior from Driving Log Data for Traffic Accident Risk Prediction
Advisor: Prof. Jae-Gil Lee
Additional Activity:
+ **Student Assistant Photographer**: International Scholar & Student Services (ISSS)
+ **Club Member**: Lunatic Street Dance Club

JUNE 2012 - MAY 2016 / BANGKOK, THAILAND
Kasetsart University
B.S. in Computer Science with First Class Honors, GPA: 3.74 / 4.00
Advisor: Prof. Pakaket Wattuya
Additional Activity:
+ **Web Developer** (Co-operative Education): NewKru Co., Ltd. (Supervisor: Prof. Sukumal Kitisin and Prof. Usa Sammapun)
+ **Teaching Assistant**: Web Technology and Web Services (CS443)
+ **Dance Instructor / Club Member**: KU Dance Club

EMPLOYMENT

AUGUST 2018 — PRESENT / DAEJEON, SOUTH KOREA
Research Assistant at Data Mining Lab, KAIST
Spatial-Temporal Data Mining and Analysis, Deep Learning Research, Automated Machine Learning for Time Series and Data Stream

MAY 2017 — AUGUST 2018 / BANGKOK, THAILAND
Frontend Developer at Sobtid Edutainment Co., Ltd.
Built APIs and developed web applications under sobtid.me project (both services for customers and in-house officers) using Node.js on Amazon's AWS and the web application using React.js with Google's Firebase

NOVEMBER 2016 — FEBRUARY 2017 / BANGKOK, THAILAND
Intern at Korean Cultural Center
Advertisement Design, Document Translation, Event Organization Assistance, and Public Relations

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Web Developer at NewKru Co., Ltd.
Researched on MOOC platforms and developed a new MOOC application

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PUBLICATIONS

Under Review

+ Trirat, P. and Lee, J.
TimesNAS: Task-Aware Zero-Cost Neural Architecture Search for General Time-Series Analysis
N* 2023

+ Trirat, P. and Lee, J.
PASTA: Neural Architecture Search for Multivariate Time-Series Anomaly Detection
N* 2023

Conference Proceedings

+ Nam, Y., Trirat, P., Kim, T., Lee, Y., and Lee, J.
Context-Aware Deep Time-Series Decomposition for Anomaly Detection in Businesses
ECML-PKDD 2023 (CORE A, Applied Data Science Paper, Acceptance Rate: 24.3%)

+ Na, J., Kim, J. Trirat, P., Park, J., Park, S., Yu, K., and Lee, J.
Interpretable Relation Prediction of Undirected Hypergraphs with Dynamic Bipartite Graphs
KIISE, KCC 2023(Poster Paper)

+ Trirat, P.*, Nam, Y.*, Kim, T., and Lee, J.
AnoViz: A Visual Inspection Tool of Anomalies in Multivariate Time Series
AAAI 2023 (Top Conference, Demonstration Paper)

+ Trirat, P., Shin, Y., Kim, S., and Kim, M.
Generating a Machine Learning Model with a Few Sentences
KIISE, KSC 2021 (Poster Paper)

+ Trirat, P. and Lee, J.
DF-TAR: A Deep Fusion Network for Citywide Traffic Accident Risk Prediction with Dangerous Driving Behavior
TheWebConf 2021 (Top Conference, Acceptance Rate: 20.6%)

+ Trirat, P., Noree, S., and Yi, M.Y.
IntelliMOOC: Intelligent Online Learning Framework for MOOC Platforms
EDM 2020 (Poster Paper)

+ Trirat, P., Kim, M., and Lee, J.
Experimental Analysis of the Effect of Autoencoder Architectures on Time Series Representation Learning
KIISE, KCC 2020 (Poster Paper)

+ Shin, Y., Yoon, S., Trirat, P., and Lee, J.
CEP-Wizard: Automatic Deployment of Distributed Complex Event Processing
IEEE ICDE 2019 (Top Conference, Demonstration Paper)

Journal Articles

+ Trirat, P., Yoon, S., and Lee, J.,
MG-TAR: Multi-view Graph Convolutional Networks for Traffic Accident Risk Prediction
IEEE Transactions on Intelligent Transportation Systems (SCIE, IF: 9.551)

+ Trirat, P., Yoon, S., and Lee, J.,
Spatial and Temporal Analysis of Dangerous Driving Behavior Using DTG Data
Korea Database Research 2019 (Vol. 35 No. 3)

+ Trirat, P., Yoon, S., and Lee, J.,
Study on Driving Behavior of Different Vehicle Types Using DTG Data
Korea Database Research 2019 (Vol. 35 No. 2)

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LANGUAGES

AND SKILLS

Languages
  Thai: Native
  English: Effective Operational Proficiency
  > *TOEIC: 975 / 990*
  Korean: Limited Working Proficiency
  > *TOPIK IBT: 6 / 6*
  > *TOPIK: 5 / 6*
  > *TOPIK Speaking: 3 / 6*

Programming Languages
  Python, JavaScript, HTML/CSS, R, Java
Frameworks / Libraries
  Tensorflow, Keras, React.js, Node.js, PyTorch
Cloud Services
  Google Cloud Platform, Amazon Web Services, Microsoft Azure
Softwares
  Microsoft Offices, Apple iWork, Adobe Photoshop, Apple Final Cut Pro

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ACCOMPLISHMENTS

Awards
+ 2022 외국인 유학생 독도사랑 한국어 말하기대회 최우수상 (팀명: K-GOOSE)
+ 2020-24 *KAIST Scholarship* (Doctoral Program)
+ 2019 3rd Place at *Year End Party Talent Show* by KAIST ISSS
+ 2018-20 *KAIST Scholarship* (Master Program)
+ 2017 Winner at *Thailand Hip Hop Dance Championship* Megacrew Division by Hip Hop International Thailand
+ 2016 Winner *LINE Finance Night Dance Competition* by LINE Finance
+ 2014-16 *Faculty of Science Awards* for Outstanding Academic Achievement Student by Faculty of Science, Kasetsart University
+ 2013-15 *Medal of Excellent Academic Achievement* by Kasetsart University
+ 2013-15 *5As Scholarship* by Department of Computer Science
+ 2012-14 *Tuition fee Exemption* (5As+ per semester) by Kasetsart University
+ 2012 *King Rama IX's Royal Awards* (Qualified Grantee of Big Vocational College) by Ministry of Education
+ 2011 3rd Runner Up at *MOS Olympics Competition Thailand* by ARiT
+ 2011 Winner H.R.H Princess Soamsawali Trophy at *SIAM MOS Competition* by ARiT

Certificates
+ 2022.08 Letter of Appointment (Member of Dokdo Supporters) by Dokdo Foundation
+ 2019.07 Certificate of Completion (*Introduction to Data Science*) by Skooldio
+ 2019.04 Certificate of Completion (*2019 Spring Mentor Program*) by KAIST ISSS
+ 2018.03 *Mobile Sites Certification* by Google
+ 2018.03 Certificate of Completion (*Modern React with Redux*) by

Udemy
+ 2017.08 Certificate of Completion (*React Js and Redux Mastering Web Apps*) by Udemy
+ 2017.05 Certificate of Training (*Mr.Wiggles Hip Hop Camp*) by Studio Zoom
+ 2016.08 Certificate of Achievement (*K-Singing Class*) by Korean Cultural Center
+ 2016.04 *Test of Practical Competency in ICT* (TOPCIT — Score: 297, Level: 2) by IITP and KPC
+ 2015.12 Certificate of Completion (제*1*기 한국유학대비 한국어과정*:* 중급) by Korean Education Center
+ 2014.05 Certificate of Participation (Thaila*nd K-POP Camp for Young Talents*) by Korean Cultural Center and Silpakorn University
+ 2014.01 Certificate of Completion (*5th Master Class*) by Move With Passion
+ 2013.10 Certificate of Honor (*Super Start Summer Camp*) by Monkey Town Academy
+ 2013.08 Certificate of Participation (*ACM-ICPC Thailand Central Group A Programming Contest 2013*) by ACM-ICPC
+ 2013.03 Certificate of Training (1*st Software Developing Skills Training Camp*) by Department of Computer Science
+ 2012.10 Certificate of Training (*1st Programming Skills for Problem-solving Training Camp*) by Depart of Computer Science

Major Course Projects at KAIST
+ A3M: Adaptive Memory Management Mechanism for Online Task-free Continual Learning (AI602: Advanced Deep Learning)
+ Q&AI: AI-Infused Q&A System for Online Learning (CS492 (J): Special Topics in Computer Science<AI for Smart Life>)
+ Towards Better Understanding of Cryptocurrency: A Multi-Aspect Analysis (CS564: Data Science Methodology)
+ Neural Predictor for Neural Architecture Search in Tensorflow 2.0 (CS470: Introduction to Artificial Intelligence)
+ Mr.TAD: Time Series Anomaly Detection with Multi-resolution Ensemble Learning (CS570: Artificial Intelligence and Machine Learning)
+ Conversational AutoML: A Framework for Generating an Efficient Machine Learning Model with a Few Sentences (CS579: Computational Linguistics)
+ HandyBoard: An Adjustable Split of Soft Keyboard in Landscape Mode Smartphone Touch Screens (CS584: Human-Computer Interaction)
+ Jet Presentation: A Presentation Rehearsal Partner for Everyone (KSE624: Mobile and Pervasive Computing for Knowledge Services)
+ TRepNet: Convolutional Denoising Autoencoder for Time Series Representation Learning (KSE801: Data Analysis based on Deep Learning)
+ Answering Question in Massive Open Online Course by Recommending Ranked Video Clips (KSE643: Knowledge Engineering and Intelligent Decision Making)

Previous Projects
+ Korean Square Web Application (React.js)
+ D Maniac Studio Mobile Application (React Native)
+ D Maniac Studio Web Application (React.js)
+ Sneakavilla Online Store (Wordpress)
+ Kyouei Co., Ltd. Website (Wordpress)
+ Sriracha Tugboat Co., Ltd. Website (Wordpress)
+ Web Application UX/UI Design (Human-Computer Interaction

Assignment and Project using AngularJs)
+ Robotz Language and Compiler (Formal Language & Automata Theory Project using Java)
+ Hook Flash Card E-Learning Web Application (Web Technology and Web Service Project#2 using CakePHP)
+ Workpoint Web-based Resource Management (Web Technology and Web Service Project#1 using PHP)
+ Floral Bloom (ERP Project using SAP B1)
+ Flower Bloom Online Store (Ruby on Rails on IBM Bluemix)
+ Adventure in Wonderland (Software Engineering Game Project using Java)
+ Hangman Game (Network Application Project using Python with Tk GUI)
+ Index Sequential Search (Data Structure Project using Adobe Flash Animation)
+ Fan Store (Software Construction Project using Java)
+ Electricity Cost Prediction Program (DevCamp#1 Windows 8 Application Project using C#)
+ Hangman CLI Game (AlgoCamp#1 using Python)
+ Polynomial Calculation (Computer Programming Project using Python)
+ Store Project (Computer Programming Project using Python)

On-stage Performances
+ 2022.11 Lunatic - Funk Night Vol.4 Tier Battle (Top 2 / Finalist)
+ 2022.07 1MDJ Showcase - Best Dancer
+ 2022 Lunatic - Spring 오픈동방 Battle (Top 4)
+ 2019 Lunatic - Spring PPOP Battle (Top 8)
+ 2019 Lunatic - Open Battle (Prelims)
+ 2019 Lunatic - 기획부장배 Battle (Top 8)
+ 2019 Lunatic - Spring 오픈동방 Battle (Guest Show)
+ 2018 Lunatic - Fall Freshmen Battle (Top 8)
+ 2018 Lunatic - Fall Illusion x Lunatic Battle (Top 8)
+ 2018 Lunatic - Fall Performance
+ 2017 D Maniac Megacrew - Hip Hop International Thailand (Winner)
+ 2017 D Maniqueen - Hip Hop International Thailand (Ranked 12th)
+ 2016 D Maniqueen - LINE Finance Night Dance Competition (Winner)
+ 2016 D Maniqueen - Hip Hop International Thailand (Ranked 6th)
+ 2016-18 KU Dance Club - Kaset Fair Annual Festival
+ 2016 KU Dance Club - Kasetsart University Orientation Day
+ 2015 D Maniqueen - Seacon Street Int'l Challenge (Ranked 6th)
+ 2015 D Maniqueen - To Be Number One Variety Showcase (NBT Channel)
+ 2015 TomYumKoong - Hip Hop International Thailand (Ranked 4th)
+ 2015-16 KU Dance Club - KU Firstdate
+ 2015-16 KU Dance Club - Freshy Night
+ 2014-16 KU Dance Club - Open Activity World Event
+ 2015-16 KU Dance Club - Royal Project Foundation Annual Event at Central World

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OTHER INTERESTS

Art and Sport
Performing Arts, Acting, Dancing, Singing, Table Tennis, Running, Basketball

Music
K-Ballad, K-Pop, Rap/Hip-Hop, R&B, Soundtracks

Lifestyles
Photography, Dramas/Movies, Mainstream Social Medias