

Burak Satar

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SUMMARY

He is currently working as a Research Scientist at SMU with the mission of making AI culturally aware. He completed his PhD at NTU under the SINGA scholarship affiliated with A*STAR. His deep passion for AI drives him to leverage recent paradigms such as VLM and multimodal foundation models to push the boundaries for high-impact real-world applications.

EDUCATION

Nanyang Technological University, Singapore

Jan 2020 - Dec 2024

PhD (College of Computing and Data Science)/ CGPA: 4.25/5.00

Thesis project: Towards Semantic, Debaised and Moment Video Retrieval with Multi-modal Features.

Related courses: Deep Learning for Data Science, Deep Learning for NLP.

Bursa Uludag University, Türkiye

Sep 2015 - Aug 2018

Master of Science (Electronics Engineering)

Thesis project: Vehicle Make-Model Classification via Deep Learning.

Bursa Uludag University, Türkiye

Sep 2009 - Nov 2014

Bachelor of Science (Electronics Engineering)

Thesis project: Smart Bus Stop System.

Exchange student at University of Naples Federico II, Italy from Feb 2014 to Jul 2014.

English Preparation at School of Foreign Languages from Sep 2009 to Jun 2010.

SKILLS

Language Skills: Turkish (Native), English (Proficient), Italian (Basic), Bahasa Indonesia (Basic).

Programming Language: Proficient in Python, PyTorch and libraries such as Scikit-learn and Pandas.

Tech Skills: Deep learning, Computer vision, LLM, Text-video alignment, Cross-modal retrieval, Pattern recognition, Data structures, Data analytics, Algorithm design, Foundation models, Causal inference, Linux.

Soft skills: Time management, Self-learning, Social entrepreneurship, Community engagement, Storytelling, Problem solving

WORK EXPERIENCE

SMU – Research Scientist, Singapore

Mar 2025 - ongoing

- Working on cultural understanding and reasoning with VLMs considering images and videos for Southeast Asia specific.

A*STAR - Graduate Researcher, Singapore

Jan 2020 - Dec 2024

- Conducted three main research projects for PhD program under supervision and funding by I2R, A*STAR.

University of Bristol - Visiting Researcher, United Kingdom

Jul 2023 - Oct 2023

- Conducted research internship at MaVi Lab (Dima Damen's Group) in the Computer Science Department.

WeWalk - AI Consultant, Remote

Jun 2022 - Dec 2022

- Consulted an award-winning London-based start-up to empower smart cane with AI and granted \$80k from Singtel.

Turkish Airlines Technology - Machine Learning Engineer, Türkiye

Feb 2019 - Sep 2019

- Formalized a drone application with a dedicated team for automated aeroplane inspection via artificial intelligence to efficiently recognise defects, reaching a performance improvement on total maintenance time by over 30%.

University of Valencia - Software Engineer Intern, Spain

Sep 2016 - Mar 2017

- Developed a dashboard to track big data of sensors by designing an IoT architecture based on MQTT & NodeJS as a full-time intern in Digital Signal Processing Lab, School of Engineering. Utilised ZWave for uninterrupted connectivity.

TSV Energy - Software Engineer, Türkiye

Nov 2014 - Aug 2015

- Implemented a smart home application by developing a wireless sensor network and Linux-based hub for sensors' communication to reduce bill cost by over 25% in a start-up funded by YGA Ventures. However, it was shut down.

PUBLICATIONS AND PRESENTATIONS

- Retrieval Augmented Reasoning Segmentation in Cultural Context, (Under Review).
- Seeing Culture: A Benchmark for Visual Reasoning and Grounding, (EMNLP 2025).
- Enhancing Video Corpus Moment Retrieval in Long Ego-centric Videos with LLM and Audio Fusion, (Under Review).
- VG-TVP: Multimodal Procedural Planning via Visually Grounded Text-Video Prompting, AAAI 2025
- An Overview of Challenges in Egocentric Text-Video Retrieval, Joint Ego4D & EPIC Workshop at CVPR 2023.
- Towards Debiasing Frame Length Bias in Text-Video Retrieval via Causal Intervention, BMVC 2023.
- RoME: Role-aware Mixture-of-Expert Transformer for Text-to-Video Retrieval, arXiv 2022.
- Exploiting Semantic Role Contextualized Video Features for Multi-Instance Text-Video Retrieval, Joint Ego4D & EPIC Workshop at Conference on CVPR 2022.
- Semantic Role Aware Correlation Transformer for Text to Video Retrieval, ICIP 2021 and at ICCVW 2021.
- Deep Learning Based Vehicle Make-Model Classification, ICANN 2018.

AWARDS AND ACHIEVEMENTS

- Completed Impact Leadership Mentoring Programme by NTU Graduate College and Compass@Campus, 2023.
- 3rd Place Award in EPIC-Kitchens Multi-Instance Retrieval Challenge at CVPR, 2022.
- Represented my college CCDS as a finalist in the Three Minute Thesis (3MT) competition held at NTU, 2022.
- Completed NTU Teaching for Teaching Assistants Programme with 'recommended to teach' grade, 2021.
- Recipient of Singapore International Graduate Award (SINGA), 2020.
- Attained the ICANN Student Travel Award from the European Neural Network Society, 2018.
- Achieved finalist position in the Innovation Competition of Bursa Uludag University V. R&D Days., 2016.

LEADERSHIP IN UNIVERSITY/PUBLIC ENGAGEMENT

NTU GSA Welfare Committee, Member

Jun 2021 - May 2024

- Organized art therapy events, from Paper Marbling to Batik workshops, every three months with varied collaborations.

NTU Turkish Society, Co-founder & President

Jun 2021 - Jun 2024

- Coordinated an event-based society to promote cultural diversity at NTU by reaching 100 attendees on average.

Bursa I/O Hackerspace, Member

Oct 2017 - Feb 2019

- Organised monthly workshop programmes focused on computer vision and machine learning to empower youth with AI.

Young Guru Academy (YGA), Member & Project Leader

Nov 2012 - Nov 2014

- Sought to cultivate future leaders as socially conscious leaders through field experience and volunteered over 400 hours.

ADDITIONAL INFORMATION

Student Member: IEEE, CVF, ACM, BMVA, PREMIA, Machine Learning SG, Data Science SG, Jul 2020 - Present.

Advised Istanbul-based start-up for defect detection in textiles to make quality checks 20% more efficient, 2020.

Accomplished EF (Entrepreneur First)-NTU Bootcamp, 2020.

Designed and developed a website platform, UluNot, providing lecture notes for sharing, Dec 2011 - Dec 2012.

REFERENCE

Prof Chong-Wah Ngo (current supervisor, SMU), Prof Joo-Hwee Lim (PhD supervisor, A*STAR/NTU),
Dr Hongyuan Zhu (PhD co-supervisor, A*STAR), Prof Hanwang Zhang (PhD co-supervisor, NTU)