Siyan Chen

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EDUCATION

PhD Fellow, Machine Learning Group, SFI Visual Intelligence
UiT The Arctic University of Norway, Norway — Mar 2026 – Present

Master in Computer Science and Engineering
Technical University of Denmark, Denmark — Sep 2023 – Aug 2025

B.Sc. in Electrical and Electronic Engineering.
Beijing Information Science & Technology University (BISTU), China — Sep 2015 – Jul 2019
Major: Electronic Information Science & Technology
GPA:3.70/5.0, 87.53/100, Top 5% of cohort

EXPERIENCE

Kyland Technology Co., Ltd. — February 2023 – May 2023
Software Engineer — *Beijing, China*

- Developed and integrated SFTP modules within the auxiliary control system for wind turbines, enabling secure file transfer and remote data access.
- Upgraded a distributed remote I/O system for real-time monitoring and conversion of analog (e.g., 4–20 mA, ±10 V) and digital signal inputs and outputs.

Beijing Highlander Digital Technology Co., Ltd. — April 2019 - April 2022
Embedded Software Engineer — *Beijing, China*

- Developed the Heading Control Series System for maritime ship navigation and steering automation. [HLD-SC600] [HLD-SC200]
- Developed HLD-VDR600 Voyage Data Recorder system, and enabled continuous monitoring and logging of data from multiple sensors (e.g., audio, image, and navigation)
- Led a group of five on HLD-RAIS100 Rudder Angle Indicator project and organized EC-Type approval tests, resulting in successful MED certification (Module B) issued by DNV. [Certificate]
- Participated in customization and maintenance of 9 on-site missions(3 independently), including deployments on 300,000-ton ultra-large oil tankers and bulk carriers.

COURSE WORK

Explainability for Vision Transformers
Special Course, 5 ECTS; Deep Learning, 5 ECTS — December 2024 – June 2025
Developed automated key point identification and description for Vision Transformers using vision-language models, turning ViT-based models into self-explainable models. [Report] [Code]
Supervisor: Prof. Kristoffer Wickstrøm, Prof. Lars Kai Hansen

Multi-Agent Planning in Dynamic Domains
Artificial Intelligence and Multi-Agent System, 7.5 ECTS — February 2024 – June 2024
Built MAvis Client in the hospital domain from scratch, and designed conflict-based search algorithm for optimal path finding and partial order planning. [Code]
Supervisor: Prof. Thomas Bolander

Secure Sound Recording and Playback System
Embedded Networked Systems, 5 ECTS — September 2023 – December 2023
Designed and implemented an ESP32-based IoT system for secure audio recording and playback, focusing on lightweight cryptographic protections and privacy-preserving communication. [Report] [Code]
Supervisor: Prof. Xenofon (Fontas) Fafoutis

Multi-VPN Gateway with VLAN-based Isolation
SDN: Software-Defined Networking September 2024 – December 2024
Developed a Multi-VPN Home Gateway that enabled dynamic selection of VPN providers with secure VLAN-based traffic isolation, combining SDN control with a JSP/Servlet-based web interface for usability (Independent Course Project). [Code]

ACADEMIC WORK

Keypoint Counting Classifiers: Turning Vision Transformers into Self-Explainable Models Without Training
Co-author https://arxiv.org/abs/2512.17891
Abstract: Current approaches for designing self-explainable models (SEMs) require complicated training procedures and specific architectures that make them impractical. With the advance of general-purpose foundation models based on Vision Transformers (ViTs), this impracticability becomes even more problematic. Therefore, new methods are necessary to provide transparency and reliability to ViT-based foundation models. In this work, we present a new method for turning any well-trained ViT-based model into a SEM without retraining, which we call Keypoint Counting Classifiers (KCCs). Recent works have shown that ViTs can automatically identify matching keypoints between images with high precision, and we build on these results to create an easily interpretable decision process that is inherently visualizable in the input. We perform an extensive evaluation of quantitative measures and human user studies, which show that KCCs improve human–machine communication compared to recent baselines. We believe that KCCs constitute an important step towards making ViT-based foundation models more transparent and reliable. Code is available at anonymised and in the supplementary.

Hardening Honeypot Technologies in IoT: Challenges and Practical Improvements
Master's Thesis, Technical University of Denmark Grade: 12/12 (2025)

- Designed and deployed a multi-node IoT honeypot architecture ("HoneyFarm") on cloud infrastructure.
- Integrated psychological deception strategies, adaptive system responses, and data-driven dashboards for attacker analysis.
- Achieved the highest grade on the Danish 7-point scale, reflecting both technical depth and research contribution.

PATENTS

- Chen, Siyan.2021. Method and Device for Obtaining Ship Model Parameters. CN Patent Application ZL 202110784280.X, filed July 12, 2021, and issued October 12, 2021.
- Chen, Siyan.2020. Control Method and System for Ship Steering Engine. CN Patent Application ZL 202010207055.5, filed March 23, 2020. Patent Pending.

SELECTED PROJECTS

Upgrade of Shipborne Voyage Data Recorder (HLD-VDR600)
Embedded software engineer September 2020 – January 2021

- Developed main control interface unit based on NXP RT1052, using FreeRTOS real-time operating system, multi-thread communication, UDP multicast.
- Developed 48 IEC 61162-1 standard NMEA-0183 serial data acquisition and logging.
- Recorded, compressed, and decoded audio signals from microphones, and uploaded the data for storage or analysis.
- Captured and transmitted Radar and ECDIS (Electronic Chart Display and Information System) screen images in real time to support centralized monitoring and maritime navigation safety.

Heading Control System Project for Inland Waterways (HLD-SC600)
Project manager, Embedded software engineer July 2021 – November 2021

- Configured project management plans, and analyzed and implemented the system architecture for the CHANGHANGHHUOYUN001, a 7500-ton cargo ship.

- Developed sensor data parsing and propagation for GYRO, GPS, and Speed Log devices using the CAN 2.0B protocol.

HONORS & AWARDS

- Beijing City Outstanding Graduate, 2019
- The National Encouragement Scholarship, 2016, 2017, 2018
- The Third Prize of Excellent Academic Scholarship, 2018
- The Second Prize in Digital Group of Integrated Circuit Design Competition in Beijing, 2018
- The Second Prize of Excellent Academic Scholarship, 2016, 2017

LANGUAGES & SKILLS

- **Programming:** C, Python, C++, Java
- **Languages:** Chinese (native), English [IELTS Band 6.5 (taken 10th December 2022)], Danish (beginner)
- **Tools:** PyTorch, Git/Github, Docker, Linux, LabVIEW, QT

HOBBIES & INTERESTS

- Basketball, enjoying the teamwork and strategy involved
- Individual sports (table tennis, billiards)
- Photography and video editing