

# Maksym Chernozhukov

Republic of Korea, Seoul, Mapo-gu, World Cup Buk-ro 7-gil

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## Summary

Senior ML/CV Research Engineer: graduated at the University of Soongsil's Department of Computer Science and Engineering, specialized in Artificial Intelligence, with a particular focus on industry-grade AI solutions using Computer Vision, with over 5 years of extensive experience heavily focused on deep learning. I have developed proficiency in ML/DL, leveraging frameworks like PyTorch, TensorFlow, and Scikit-Learn in various practical projects and research initiatives. Actively seeking AI Research Engineer positions where I can contribute to innovative projects.

## Work Experience

### DeltaX

Seoul, South Korea

Team leader / AI Research Engineer

Sept 2021 - Present

- Designed, developed, optimized and deployed **over 15+ SOTA deep learning models** to end-to-end perception pipelines for **Smart Cabin Monitoring System (SCMS), Driver Monitoring System (DMS), Occupation Monitoring System (OMS)**, led a team of researchers and managed the Hyundai Mobis, Edison Motors's, 42dot autonomous vehicles projects with diverse solutions: **Drowsiness, Driver Distraction, Driver Behaviour, Face ID, Head Pose Estimation, Gaze Tracking, Pose Estimation, Hands on the Steering Wheel, Occupancy Detection, Seat-belt Detection, Left-item Detection, Child Detection, Age, Gender, Emotion, Gesture Recognition, and Depth Estimation**, achieving significant improvements in system accuracy by 18% and efficiency by 4x reduction in the model sizes, and by 2x times faster inference speed through optimization and quantization to make compatible models with embedded devices.
- Spearheaded the development and optimization of a cutting-edge **3D Face Reconstruction** model using the 3D Morphable Model framework. This initiative targeted a broad spectrum of facial feature analysis tasks, significantly enhancing model efficiency and robustness. Key achievements include high-precision detection and generation of 2D/3D facial landmarks, advanced auto-labeling, and synthetic data generation through facial feature transformation. Notably, the 3D facial landmarks achieved a 17x increase in inference speed, while the Normalized Mean Error (NME) decreased by 7%, from 3.935 to 3.682. The primary focus was on optimizing performance to ensure real-time processing capabilities, making the solution viable for addressing industry-specific challenges in facial feature analysis.
- Successfully engineered and implemented an **optimized model inference pipeline** with achieving real-time inference speed by 30 FPS, serving as a pivotal element for the proof-of-concept (POC) showcase in the Smart Cabin Monitoring System initiative.
- Developed light deep learning models to enable **real-time Object Detection, Segmentation, Tracking, and Distance Estimation** using multiple cameras, resulting in significantly improved accuracy and efficiency.
- Developed a high-performance, **ultra-lightweight Deepfake Detection** model using the SSL principle. Achieved state-of-the-art results with an AUC over 90% across various datasets, with efficient inference times and low power consumption for low-capacity CPU environments.
- Designed, developed, and optimized relational **databases for SK oil company** with over 2 billion of data, supporting the data storage needs, managing diverse data including prices, oil types, and client information, with periodic summaries of valuable information.
- Led a sophisticated **web crawling** project focused on art-related data aggregation, successfully processing over 10 million instances from diverse sources. Handled complex parsing of various art items, their transformation into a standardized form, data cleaning, and structuring, which significantly increased the integrity and accessibility of data for the further development of the art recommendation system.

### Soongsil University Laboratory

Seoul, South Korea

AI Research Engineer

Sept 2018 - Feb 2021

- Developed an **"Active Aging Advisory System"** — a software for aging diagnosing and treatment recommendations. Where I was responsible for the development of functionality for face detection and age prediction by aging features like wrinkles, and aging spots.
- Developed a **"BOK Assessment Service (BOKAS) System"** — a cloud service for conducting interview tests on technology courses. The project contained the development of functionality for managing data like courses, authors, problems, solutions, etc.
- Developed a **"Recommender System Based on Data Fading"** — the last project (Thesis) that focused on research for improving the recommender system performance through cleaning the dataset from noise and faded data.
- Obtained Skills:** solid Artificial Intelligence Background, Programming Skills, Data Mining, Mathematics Background, Teamwork, Time Management, Communication, Presentation skills, Logical Thinking, Critical Thinking.

## Skills

**AI Frameworks** PyTorch • TensorFlow • Keras • Scikit-learn

**Areas of Expertise** Image Processing • Recognition • Detection • Segmentation • Depth Estimation • Quantisation • Optimization • etc.

**Programming** Python (expert) • C# • Web Development (HTML, CSS, JavaScript) • Database Development (SQL, Oracle)

**Libraries** OpenCV • NumPy • Pandas • PIL • Matplotlib • Docker • FFmpeg • Dlib • Scikit-image • ONNX • TensorRT • etc.

**Miscellaneous** Windows, Linux, WSL, SSH, PyCharm, VS Code, Jupyter Notebook, Microsoft Office, GitHub, LaTeX, ChatGPT, etc.

**Soft Skills** Project Management, Teamwork, Communication, Problem-solving, Adaptive to New Technologies, Technical Writing.

**Languages** English (Professional) • Korean (Elementary) • Russian (Native) • Ukrainian (Native)

# Education

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**Soongsil University**  
MSc in Computer Science and Engineering

Seoul, South Korea  
Sept 2018 - Feb 2021

- **GPA:** 4.24/4.5 or 95.5/100 scores
- **Courses:** Artificial Intelligence, Machine Learning, Deep Learning, Data Science, Data Mining, Statistical Learning, Statistical Theory and Methods, Software Engineering, Software Architecture, Internet of Things, Mobile Communications.

# Achievements

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2018	<b>Level 4</b> , TOPIK (Test of Proficiency in Korean)	South Korea
2017	<b>Scholarship</b> , NIIED - Korean Government Scholarship Program (1-st place representative student of Ukraine)	South Korea
2016	<b>Red Diploma</b> , Bachelor's Degree, Computer Science and Engineering	Ukraine
2012	<b>Red Diploma</b> , Lyceum (High School), Information Technologies	Ukraine