Kha Vu Chan

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Experience

- **Microsoft** — Seattle Area, WA
  Software Engineer, Core Relevance Team, Bing Image Search — *2019 — Present*
  - **Accelerated** the training pipeline of the Bing Image **Search Relevance Ranking** model by a **2x factor** and scaled it up, allowing more frequent shipment of relevance ranking models and enabling shorter experimentation iterations.
  - From 2019 to 2020, worked in Excel. Created features to help users make more accessible docs. Worked on both back-end and client side for all supported platforms. Created a VSCode extension that makes the usage of internal tools easier.
- **Samsung Research** — Kyiv, Ukraine
  Machine Learning Engineer at Context Recognition Lab — *Feb 2017 — Oct 2019*
  - Optimized neural networks for mobile devices using pruning, quantization, representation sharing, distillation, weights sharing, and more. Achieved near-SOTA results with **50x improvement** in speed and memory usage.
  - For 2 months, temporarily **led a team** of 3 engineers for a Multi-Task Learning On-Device AI project. Drove the R&D process, technical decisions, and overall direction of the project. Was responsible for the project's progress.
  - Developed State-of-the-Art Deep Learning models for real-time Monocular 3D Scene Reconstruction, Tracking, and Semantic Understanding for indoor scenes. Improved the stability of trained models by utilizing tracking data.

Education

- **Taras Shevchenko National University of Kyiv** — Kyiv, Ukraine
  Master of Science in Applied Mathematics, specialized in Computational Mathematics. — *Sep 2017 – Jun 2019*
  - **MS thesis:** Adaptive representation sharing in Multi-Task Networks. Developed a new greedy NAS method to find the optimal multi-task branching. Implemented other SOTA multi-objective gradient aggregation and NAS methods.

  Bachelor of Science in Applied Mathematics, specialized in Computational Mathematics. — *Sep 2013 – Jun 2017*
  - **BS thesis:** Breast Cancer Screening by analyzing the Interphase Nuclei of the Buccal Epithelium using Computer Vision techniques. Calibrated data to mitigate medical instrument biases. Developed an instance segmentation model.

Projects

- **Hydra – a Deep Multi-Task Learning framework.** Implemented SOTA Multi-Objective Optimization methods (e.g. GradNorm, MGDA-UB) and developed a new NAS method for Multi-Task Neural Nets. (github.com/hav4ik/Hydra)
- **Eyesight – a framework for Real-Time Computer Vision.** A framework similar to MediaPipe for running real-time Computer Vision pipelines at the Edge. Supports Coral Edge TPU, RPi Camera, and more. (github.com/hav4ik/eyesight)
- **Google Landmarks Challenge 2020.** In just 3 weeks (out of 2 months), created a large-scale deep metric learning, image retrieval, and re-ranking system. Created a novel training routine for ArcFace. Finished 22nd from 736 teams (top 3%).
- **Non-invasive & radiation-free Breast Cancer screening using ML** at Department of Computational Mathematics, collaborating with the Institute of Experimental Pathology, Oncology and Radiology of Kyiv. (2016 — 2018)

Awards and Honors

- All-Ukrainian Computer Science Competition by Minor Academy of Sciences (**3rd** place and **3rd place**) *2012 and 2013*
- All-Ukrainian *Intel ISEF* Competition (**3rd** place and **3rd** place) *2012 and 2013*

Talks, Lectures, Blogs, and Volunteering

- **Deep Metric Learning lecture.** Gave a lecture to Kyiv Data Science community. Live-stream: y2u.be/aU9yEwgrJ54.
- **hav4ik.github.io** — my personal blog where I write in-depth surveys and articles related to math and machine learning.
- **Competitive programming trainer.** Prepared talented high-school students for the CS olympiads. (2013 — 2014)

Skills

- **Programming Languages:** C/C++, Python, C#, S#, TypeScript, SQL, KustoQL, Bash, Java, JavaScript, MatLab.
- **Technologies:** PyTorch, TensorFlow, Keras, TF-Lite, OpenCV, scikit-learn, LightGBM, .NET, Django, Unreal Engine, QT, Android Programming, Caffe, AzureML, Apache Spark, Docker, Kubernetes, GCP, AWS.
- **Languages:** English (TOEFL iBT 102), Vietnamese (native), Russian (native), Ukrainian (native).