Kha Vu Chan

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Experience

- **Microsoft** — Seattle Area, WA
  Software Engineer — Bing Image Search — Core Relevance Team — *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.
  - Migrated the training pipeline of my team's Image Search Relevance Ranking model to AzureML platform. Improved the model development and experimentation process. Suggested design improvements to Azure Component SDK and Shrike.
  - From 2019 to 2021, 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 — 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 and results.
  - Developed State-of-the-Art Deep Neural Networks for real-time Monocular 3D Scene Reconstruction of indoor scenes. Improved the stability of trained models by utilizing Tracking, SLAM, Object and Occlusion Detection techniques.

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 out of 736 teams (**top 3%**).

Awards and Honors

- All-Ukrainian Computer Science Competition by Minor Academy of Sciences (**3rd place** in 2012 and **3rd place** in 2013).
- All-Ukrainian Intel ISEF Competition for high school students (**3rd place** in 2012 and **3rd place** in 2013).

Miscellaneous

- **Deep Metric Learning lecturer** (2021). Gave a lecture to Kyiv DS community. Live-stream: youtu.be/aU9yEwgrJ54.
- **hav4ik.github.io/articles** — personal blog where I write in-depth surveys & posts related to math and deep learning.
- **Competitive programming coach** (2013 — 2014). Prepared talented high-school students for National CS Olympiad.

Skills

- **Programming Languages:** C/C++, Python, C#, S#, TypeScript, SQL, KustoQL, Bash, Java, JavaScript, MatLab.
- **Technologies & Frameworks:** 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).