Dan Graur

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EXPERIENCE

ETH Zürich - Systems Group Zürich, Switzerland
Research Assistant / PhD Student *11/2019-present*
- Advised by Prof. Gustavo Alonso and Prof. Ana Klimovic.
- Published at top conferences: VLDB, ICDE, ATC, SoCC, etc.
- Systems for ML research: efficient, scalable, distributed ML data processing and LLM data management.
- Data Management research: query languages and efficient means of processing semi-structured data.
- Often worked and published with industry collaborators from Google and Snowflake.
- Mentored 8 students for their MSc theses; most awarded maximal grades; some awarded prizes for their work

Google Sunnyvale, California, USA
Research Intern *08/2023-11/2023*
- Part of the SystemsResearch@Google group. Mentored by Fatma Ozcan and Yannis Chronis.
- I researched novel adaptive indexing methods for improving performance and memory efficiency for distributed cloud databases. Worked closely with AlloyDB on features likely to make it into production.

Google Mountain View, California, USA
Research Intern *06/2022-09/2022*
- Part of the tf.Data team, where I researched novel ways to process data for large-scale ML jobs.
- I worked extensively with TensorFlow and ML preprocessing logic for production models.
- Published a paper at SoCC'23 around disaggregation for large-scale ML preprocessing.

Google Zürich, Switzerland
Software Engineering Intern @ Google Brain *06/2020-09/2020*
- Worked in the Flax team where I implemented RetinaNet. Mentored by Marvin Ritter.
- I worked extensively with Jax, Flax, TensorFlow, and the Google Cloud Platform.

TU Delft - Distributed Systems Lab Delft, The Netherlands
Software Developer *04/2018-10/2019*
- Software development for Distributed Systems in Python on the Trustchain and the Tribler P2P ecosystem.

Technical University of Cluj-Napoca Cluj-Napoca, Romania
Student Researcher *11/2016-07/2017*
- Worked in the Knowledge Engineering Group where I led and assisted research in fundamental methods for Multiple Instance Learning. Our work resulted in a paper published at an ECML-PKDD'18 workshop.

Telenav Cluj-Napoca, Romania
Software Engineering Intern *07/2016-08/2016*
- Worked in C++ on a geopositioning platform. I implemented two features (twice the workload expected from interns): (1) dynamically discovered POI and (2) circuit generation. Both features made it into production.

EDUCATION

ETH Zürich
PhD in Computer Science @ Systems Group *2019 - present*
- 5th best university in Computer Science in the world
- Focus on Systems for Machine Learning and Data Management

ETH Zürich & TU Delft
MSc in Computer Science *2017-2019*
- MSc Thesis: Distribution Optimization of Large Scale Machine Learning
- Grades: thesis: 9 out of 10. GPA: 8.5 out of 10

Technical University of Cluj-Napoca
BSc in Computer Science *2013-2017*
- BSc Thesis: Complex Localization in the Multiple Instance Learning Context
- Grades: thesis: 10 out of 10. GPA: 9.6 out of 10; Graduated top 1%.

PUBLICATIONS

- **Graur, D.**, Mraz, O., Li, M., Pourghannad, S., Thekkath, C., and Klimovic, A., *Pecan: Cost-Efficient ML Data Preprocessing with Automatic Transformation Ordering and Hybrid Placement*, 2024, Proceedings of the USENIX ATC (to appear)   *2024*
- **Graur, D**., Röthlisberger, R., Jenny, A., Drozdowski, F., Konigsmark, C., Müller, I., and Alonso, G., *Addressing the Nested Data Processing Gap: JSONiq Queries on Snowflake through Snowpark*, 2024 IEEE 40th International Conference on Data Engineering (ICDE). (*to appear*)   *2024*
- Audibert, A., Chen, Y., **Graur, D.**, Klimovic, A., Simsa, J. and Thekkath, C., *tf.data service: A Case for Disaggregating ML Input Data Processing*, 2023, 14th Symposium on Cloud Computing   *2023*
- **Graur, D.**, Aymon, D., Kluser, D., Albrici, T., Thekkath, C. and Klimovic, A., *Cachew: Machine Learning Input Data Processing as a Service*, 2022, Proceedings of the USENIX ATC   *2022*
- [Best Paper] **Graur, D.**, Müller I., Proffitt M., Watts G. T., and Alonso G., *Evaluating Query Languages and Systems for High-Energy Physics Data*, 2022, VLDB Endowment   *2022*
- **Graur, D.**, Bruno, R. and Alonso, G., *Specializing Generic Java Data Structures*, 2021, 18th ACM International Conference on Managed Programming Languages & Runtimes   *2021*
- **Graur, D.**, Bruno, R., Bischoff, J., Rieser, M., Scherr, W., Hoefler, T. and Alonso, G., *Hermes: Enabling efficient large-scale simulation in MATSim*, 2021, Procedia Computer Science, 184, pp.635-641.   *2021*
- Rellermeyer J. S., Khorasani S. O., **Graur D.** and Parthasarathy A., *The Coming Age of Pervasive Data Processing*, 2019, 18th International Symposium on Parallel and Distributed Computing,   *2019*
- **Graur D.** , Maris R. A., Potolea R., Dinsoreanu M. and Lemnaru C., *Complex Localization in the Multiple Instance Learning Context*, 2018, ECML-PKDD (New Frontiers in Mining Complex Patterns)   *2018*

TEACHING

Data Modelling and Databases - Teaching Assistant	*Spring 2023 and 2024*
Data Management Systems - Head Teaching Assistant	*Autumn 2022*
Information Retrieval - Teaching Assistant	*Spring 2022*
Cloud Computing Architecture - Head Teaching Assistant	*Spring 2021*
Big Data - Teaching Assistant	*Autumn 2020 and 2021, and Spring 2021*

HONORS AND AWARDS

TPU Research Cloud
Researcher Spotlight   *2023*
- Featured researcher for the work done at ETH Zürich on efficient ML data processing using TPUs.

IDEA League
Research Grant   *2019*
- Grant awarded for cutting-edge research projects developed within the IDEA League.

TU Delft
Excellence Scholarship   *2017-2019*
- Two-year scholarship awarded to academically excellent students.

Technical University of Cluj-Napoca
Merit Scholarship   *2013-2017*
- Best possible scholarship awarded based on academic excellence.

SKILLS

Languages:	PYTHON, C/C++, JAVA
Topics:	Distributed and Large Scale Systems, Systems for ML, Databases, Cloud Computing, Research
Frameworks:	TensorFlow, Spark, PyTorch, Jax

LANGUAGES

ENGLISH:	Proficient (C2) - 2012 Cambridge Certificate in Advanced English - Grade A
GERMAN:	Intermediate (B1)
FRENCH:	Intermediate (B1)
ROMANIAN:	Native