

# Kaster Kumarbek

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Dresden, Germany

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## PROFESSIONAL SUMMARY

Master's student in Computational Modeling and Simulation with hands-on experience building full-stack applications in Python, FastAPI, and TypeScript. Developed and deployed commercial web apps and internal tools on Linux using Docker, CI/CD, and PostgreSQL. Practical experience integrating ML models into production APIs and building interactive dashboards for monitoring and evaluation.

## PROJECTS

### **Multilingual Product Catalog Website (July 2025) – Commercial Project**

*Vue 3, TypeScript, FastAPI, i18n, Docker*

- Built a production website for a client to display product catalogs with full support for 3 language locales, using Vue 3, TypeScript, and vue-i18n for locale management.
- Implemented a FastAPI backend for contact/email forms, including input validation, error handling, and logging.
- Containerized the application with Docker and documented setup and deployment steps for the client's hosting environment.
- Focused on smooth UX: responsive layout, fast navigation across product categories, and consistent behavior across locales.

### **Time-Series Forecasting Dashboard (March 2025), Personal Project**

- Designed for MLOps-style retraining/monitoring; methods transferable to predictive maintenance (anomaly detection)
- Trained a 1D CNN + LSTM model on engineered features like review deltas, price trends, and seller count.
- Developed and deployed a full-stack web application with FastAPI backend and interactive dashboard, integrating ML models into REST API endpoints.
- Automated updates with cron on Ubuntu; experience with CNN architectures transferable to computer vision tasks.

## EXPERIENCE

**Research Assistant** – Nazarbayev University (August 2022 – May 2023), Astana, Kazakhstan

- Developed core data structures in C++ for an academic proof assistant, enabling parsing,

construction, and evaluation of logical expressions.

– Implemented a “beautifier” module to generate human-readable proof chains from system verdicts, improving usability for educational users.

**Backend Engineer** – Astana Hub (October 2021 – April 2022), Astana, Kazakhstan

– Automated ingestion of structured records by replacing manual DB updates with JSON-based API pipelines built in FastAPI and PostgreSQL, eliminating repetitive human work.

– Deployed pipelines in Docker on Linux VPS, adding custom error handling and logging for early failure detection (similar to industry monitoring systems such as Sentry).

– Added structured logging and error reporting to pipelines, making failures easily debuggable and observable in production-like environments.

– Reduced manual data processing effort by around 80%, while improving data accuracy, availability, and throughput across internal services.

## EDUCATION

**Technische Universität Dresden** (October 2024 – March 2027, Expected)

Master of Computational Modeling and Simulation, Dresden, Germany

**Nazarbayev University**

(August 2019 – June 2023)

Bachelor of Science in Computer Science, Astana, Kazakhstan

Bachelor Thesis: Interactive Proof Checker For Higher order Logic,

Supervised by Hans de Nivelle

## SKILLS

• **Languages:** Python, SQL, Shell, C++

• **Frameworks and Libraries:** FastAPI, PyTorch, scikit-learn, Pandas, NumPy

• **Machine Learning:** Time-Series Forecasting, CNNs, LSTMs, Feature Engineering, Model Evaluation, Basic Computer Vision

• **Data Engineering:** ETL Pipelines, Web Scraping, PostgreSQL, JSON, MongoDB

• **DevOps & Deployment:** Docker, Gunicorn, Cron, Tmux, Nginx, Ubuntu Server

• **Tools:** Git, Bash, GitHub Actions (CI/CD)

• **Languages:** English (C1), German (A2), Italian (A2)