

Bogdan Despotov

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EXPERIENCE

AXSMarine

Machine Learning Engineer

Bulgaria (remote)

Dec. 2023 - present

- **Code quality:** Introduced unit and integration tests to components and gained key insights into improvement scenarios.
- **Innovation:** Replaced regex parsing of natural language with small sized LLM and improved overall accuracy while freeing up manpower to focus on other tasks.
- **LLM:** Researched, fine-tuned and built datasets for several LLMs adapting them for a number of downstream tasks.
- **Model serving:** Implemented a highly efficient model serving framework which scaled to serving tens of thousands of requests on CPU and slashed cloud resource costs.

Cognyte

Machine Learning Engineer

Bulgaria (remote)

Mar. 2022 - Apr. 2023

- **Ownership:** Responsible for all ML components: bug fixing, performance improvement, troubleshooting.
- **Productionize:** Put to production as microservices ML models developed internally. Stack: Kubernetes, Helm, Flask, BentoML, GCP.
- **Research:** Create PoCs for prospect client by fine-tuning state of the art ML models: YOLO, Whisper, easyOCR.
- **Design:** Create high level designs for components that interact with the ML microservices, present to development teams and support their implementation efforts.

CloudSigma

Software Engineer

Sofia, Bulgaria (hybrid)

Mar. 2016 - Mar. 2022

- **Develop:** Worked on a proprietary cloud stack leveraging KVM, QEMU for virtualization. Included a customer facing API serving hundreds of thousands of requests daily. Leveraging a Python tech stack including: Django, Celery, Tastypie, unittest, Flask and more.
- **Implementations:** Successfully implemented a number of new features including support for Intel SGX, GPUs, VMWare virtualization, SAML authentication. Helped reduce technical debt by refactoring legacy code, improving test coverage and transitioning from Python 2 to Python 3.
- **EC projects:** Lead the technical involvement of the company in several project within the Horizon2020 and RISE frameworks. Efforts include software development, documentation and project management.

Hostway Corporation

Server support and administration, NOC monitoring

Sofia, Bulgaria

Nov. 2011 - Jan. 2013

- **Administration:** Within the product line of fully managed Linux and Windows servers.
- **NOC:** Monitoring the global company network and servers and fixing issues as they arise.

PROJECTS

DITAS

Data-intensive applications Improvement by moving data and compute in cloud Work package leader

COLA

Cloud Orchestration at the Level of Application Work package leader

SecureCloud

Secure Big Data Processing in Untrusted Clouds Part of consortium

- **Publication Co-Author:** Secure and Scalable Key Value Storage for Managing Big Data in Smart Cities using Intel SGX.

SecInCore

Secure Dynamic Cloud based on Pan-European Disaster Inventory Part of consortium

- **Publication Co-Author:** Cloud-based semantic services for pan-European emergency preparation and planning

SEO-DWARF

Semantic EO Data Web Alert and Retrieval Framework Part of consortium

HOBBY PROJECTS

Logtrucks

Code

Logging trucks and license plates detection in the wild.

- **Dataset:** Dataset of logs on trucks and Bulgarian license plates.
- **Purpose:** To detect logging trucks and their license plates in the wild.
- **Method:** Fine-tuned YOLOv7 and easyOCR on the datasets.

Bulgarian news comments dataset.

Code

Application to extract comments from a news site and build them into a dataset.

- **Dataset:** Dataset of 500k comments on a news site in Bulgarian.
- **Purpose:** Fine-tune LLaMa on the dataset mostly for comic effect.

Fine-tuned Llama 2 model for Bulgarian.

Code

Llama 2 Base 7B fine-tuned for better Bulgarian language generation.

- **Dataset 1:** Above mentioned news comments dataset.
- **Dataset 2:** Chitanka dataset preformatted using this script:
<https://github.com/bogdan-ds/chitanka-llm-dataset>