



# IVAN KITANOVSKI

Associate Professor ◇ Software Architect ◇ Data Scientist

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<http://ivankitanovski.com>

## EXPERIENCE

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### **Faculty of Computer Science and Engineering, Saints Cyril and Methodius University of Skopje**

Sept 2022 - present

*Associate Professor*

Leading and participating in research and industry projects. Giving lectures, mentoring students.

Notable Projects

- AiTLAS: toolbox (Artificial Intelligence Toolbox for Earth Observation) includes state-of-the-art machine learning methods for exploratory and predictive analysis of satellite imagery as well as repository of AI-ready Earth Observation (EO) datasets. It can be easily applied for a variety of Earth Observation tasks, such as land use and cover classification, crop type prediction, localization of specific objects (semantic segmentation), etc. More: <https://github.com/biasvariancelabs/aitlas>

### **MetaStreet Labs**

March 2022 - present

*Data Scientist / Engineer*

Created and maintained a system for analytics and modeling the collateral value of NFTs. The system gathered and processed data from various source and exposed different metrics via REST APIs. It was used to generate \$60+M loan volume. Also, created different dashboard for monitoring and visualizing the metrics of the protocol as well as the entire NFT lending market. Tech stack: Python, Docker, TrinoSQL, DuneSQL.

### **Faculty of Computer Science and Engineering, Saints Cyril and Methodius University of Skopje**

Dec 2017 - Sept 2022

*Assistant Professor*

Participated in research and industry projects related to information retrieval, computer vision, multimedia and general software engineering. Published obtained results. Organized and participated in conferences. Mentored students on theses, projects and exercises.

Notable Projects

- Biometric authentication system: Created a system for multimodal biometric authentication. The system was able to identify individuals based on all/any of the following: facial features, fingerprints, retinal scan and/or vocal features.
- Automated traffic monitoring system: Created a system for automatic average speed detection of vehicles. The system used a set of cameras, which could be deployed on roads and used to automatically detect and identify the vehicles their location, speed and any violations.

### **Joint Research Centre of the European Commission - Ispra**

October 2020 - June 2021

*External Expert*

Developed a model for social media analysis in the context of forest fires. More precisely, a multilingual model for forest fires related content in Twitter data. Integrated the model in a larger system for crisis management (SMDRM). Tech stack: Python, PyTorch, Docker.

### **Storeshippers - Amsterdam**

June 2019 - present

*Engineering manager/Consultant*

Leading the team to design, implement and maintain the system for connecting retailers and carriers. The system allows for retailers to easily enter the shipments and automatically (or based on other business rules) assigns carriers to deliver the package to the consignee. Transparently, notifying all parties in the process. Tech stack: Python, Django, PostgreSQL, AWS, Docker, React.

### **Technische Universität Berlin**

January 2019 - June 2019

*Senior Software Engineer - Search*

Lead the development of open source search tools as Elasticsearch plugins and libraries, which can rank with post-processing (FA\*IR) and in-processing (DELTR) with fairness constraints:

- Created search tools based on the FA\*IR Search framework that uses machine learning to provide a fair search result with relevant protected and non protected classes. The output was an Elasticsearch plugin, Java library and a Python library.
- Created search tools based on the Disparate Exposure in Learning To Rank framework with relevant protected and non protected classes. The output was a Java library, a Python library and an Elasticsearch LTR-based wrapper

Tech stack: Java, Python, Elasticsearch

### **Infinite Analytics**

Sep 2014 - Mar 2019

*Senior Software Engineer*

My duties include:

- Leading the Macedonia team to design, develop and maintain several projects which are part of the IA system such as the recommendation and search engine APIs, the (ETL) data synchronization tool, user traffic reporting system and internal monitoring systems. Hands-on on all levels of the system.
- Directly communicating with clients to understand their needs and provide proper integration on the front-end and back-end.
- Coordinating/managing with the other teams spread across multiple time-zones.

Tech stack: Java, Python, Spark, Elasticsearch, Redis, Scala, Akka, Riak, MySQL, JavaScript, Google Cloud, Virtuoso, Linux, C++

### **Mindion**

Sept 2014 - Mar 2019

*Founder*

Founder of a data science and engineering consulting company where I cover the business development and technical aspects. Lead my team to technically tackle various software and data science projects.

### **Faculty of Computer Science and Engineering, Saints Cyril and Methodius University of Skopje**

Aug 2011 - Dec 2017

*Research and Teaching Assistant*

My responsibilities included:

- Taught the courses Internet Programming (JavaScript, Java), Basics of Web Design, Human Computer Interaction, Interactive applications, Introduction to Computer Science, Object-Oriented Programming (Java, C++), Structured Programming (C) etc.
- Participated in research projects related to generic information retrieval, computer vision, image classification and retrieval. Published obtained results.
- Organized and participated in conferences.
- Mentored students on projects and exercises.

## **Infinite Analytics**

Mar 2013 - Sept 2014

*Data Scientist*

Worked on and created several aspects of the Infinite Analytics systems, with team members and clients spread across multiple time-zones:

- Created APIs to serve recommendations.
- Created APIs and data processing pipelines to handle Facebook, Twitter users' data upon sign-in.
- Developed NLP models for data enrichment of user data using Linked Data knowledge sources.
- Created internal testing and monitoring tools for how the system is performing.

Tech stack: Java, MySQL, RabbitMQ, Python, JavaScript, Virtuoso, Linux, C++.

## **Advertisia**

March 2012 - Sep 2016

*Cofounder & CTO*

Created and maintained a cross-exchange banner network for websites. Websites get promoted by helping other web sites. The system was used by more than 200 websites. There I focused mostly on:

- Creating APIs to serve the ads.
- Creating a client-facing web application for customers to add, configure and monitor their ads.
- Directly communicating with clients to address their needs and provide help for integration where necessary.

Tech stack: JavaScript, MSSQL, ASP.NET

## **Consulting**

Jan 2012 - Jan 2013

*Software Engineer*

Worked on multiple projects as a consultant:

- Worked on a keyword clustering application for marketing purposes. The application groups keywords based on similarity, which people in marketing use to target their ads.
- Worked on a campaign generation tool used by people in online marketing to auto-generate ads based on entered keywords.
- Worked on modules for a smart house system, which syncs with various devices in the house/plant and visualizes that information.

## **Faculty of Electrical Engineering and Information Technologies, Saints Cyril and Methodius University of Skopje**

Sep 2009 - Aug 2011

*Junior Research and Teaching Assistant*

I was involved in the lecturing and research parts of the department:

- Taught the courses Internet programming (Java and JavaScript), Visualization, Human Computer Interaction, Virtual Reality, Object-Oriented Programming (C++), Structured Programming (C) etc.
- Participated in research projects related to computer vision and image retrieval. Published obtained results.
- Participated in conferences.
- Mentored students on projects and exercises.

## **Faculty of Electrical Engineering and Information Technologies, Saints Cyril and Methodius University of Skopje**

Oct 2008 - Sep 2009

*Laboratory Assistant*

I was mostly involved in mentoring students during their lab work:

- Conducted laboratory exercises with students.
- Created and graded exercises.
- Helped and guided the students during their lab work.

### **Makedonski Telekom**

May 2008 - Oct 2008

*Software Engineer*

Worked on a mobile network traffic reporting and visualization system. The system generated reports for various parts and aspects of the network.

## **EDUCATION**

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### **Saints Cyril and Methodius University of Skopje**

2012 - 2017

*Doctor of Philosophy - PhD, Computer Science and Engineering*

Overall GPA: 10/10

Faculty of Computer Science and Engineering

### **Saints Cyril and Methodius University of Skopje**

2009 - 2012

*Master's degree, Software Engineering*

Overall GPA: 10/10

Faculty of Computer Science and Engineering

### **Saints Cyril and Methodius University of Skopje**

2005 - 2009

*Bachelor's degree, Informatics and Computer Engineering*

Overall GPA: 9.77/10

Faculty of Electrical Engineering and Information Technologies

## **SKILLS**

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### **Industry Knowledge**

Software Development Life Cycle, Management, ETL,  
Information retrieval, Machine learning, Computer vision  
Database management, Front-end, Data Visualization

### **Tools & Technologies**

Python (Django, Flask, etc.), JavaScript, Java, Spark, SQL, CSS  
ElasticSearch, Redis, RabbitMQ, Virtuoso, Google Cloud, Ansible

### **Interpersonal Skills**

Communicative, Problem solving, Decision making,  
Public speaking, Teaching

## **ADDITIONAL ACTIVITIES**

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Author or coauthor of over 40 published scientific articles

Member of Association for Information and Communication Technologies ICT-ACT

Member of the non-formal Data Science Macedonia organization

## **PUBLIC SPEAKING**

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On JavaScript for CodeApp LevelUp 2018

On JavaScript in front-end development for BEST student organization summer seminar 2018

## **CERTIFICATION**

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Deep Learning Specialization - License LJHGBFMS3CHM

Sequence Modeling - License X78ZBAEK9Z5T

Convolutional Neural Networks - License C3FLVFT9EAD5

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization - License  
KY49U72VQPNJ

Structuring Machine Learning Projects - License YYEM9MK3TXK4

Neural Networks and Deep Learning - License 97RBNY82B9UF