

# STEFAN ANDJELKOVIC

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## TECHNICAL SKILLS

- **Programming languages:** Python (preferred), C/C++, C#, Java, HTML/CSS/JavaScript
- **Data Science:** Numpy, Pandas, SciPy, Statsmodels, Matplotlib & Seaborn, Bokeh, SQL, MongoDB
- **Machine Learning and Deep Learning:** Scikit-learn, PyTorch (preferred framework), TensorFlow, Keras
- **NLP:** NLTK, SpaCy, Transformers (BERT)
- **Genomics:** GATK, SAMtools, BCFtools, BWA-MEM, somatic variant callers (VarDict, Strelka, VarScan2, Mutect2), IGV, VEP
- **OS:** Linux (Ubuntu), macOS, Windows
- **Other:** Git, Docker, Scikit-image, PIL, ImageIO, ImageJ, NetworkX, Cytoscape, BioNetGen, INDRA, Folium, ROOT,  $\text{\LaTeX}$

## WORK EXPERIENCE

### University of Pittsburgh (Natasa Miskov-Zivanov lab)

Pittsburgh, PA, USA

Graduate Student Researcher

Aug 2018 - present

- Project #1: Discrete modeling of Ras signaling pathways for optimizing cancer treatments
- Project #2: Intervention modeling on causal graphs for resolving complex challenges, case study: Children malnutrition in Ethiopia
- Project #3: Quantitative information extraction from unstructured text for automated executable network model building (NLU)
- Project #4: Text mining of literature on transcranial magnetic stimulation experiments for mapping human motor cortex circuitry
- Lab duties: Lead the interventions modeling working group in the [World Modelers](#) project, lab git repo maintenance, peer review
- CPCB GSA: Senator (2019/20), Treasurer (2020/21), Student Seminar Coordinator (2020/21), Curriculum Committee (2019-2021)

### Persida

Belgrade, SERBIA

Bioinformatics Engineer

Feb 2018 - Aug 2018

- Developed software for automated functional annotation of mutations with information from more than 10 different databases
- Automated text mining of phenotype databases (HPO, OMIM) for computer-aided diagnostics
- Worked on web interface for the annotation tools

### Seven Bridges Genomics

Belgrade, SERBIA

Bioinformatics Engineer

Aug 2016 - Jun 2017

- Wrapped (dockerized), ported, and curated bioinformatics tools on cloud (AWS)
- Built, automated and tuned multiple pipelines for genomics analyses on cloud
- Automated circulating tumor DNA (ctDNA) analysis of WGS/WES data, for non-invasive cancer diagnostics and treatment

### CERN

Geneva, SWITZERLAND

Summer Student

Jun 2014 - Aug 2014

- Developed [a statistical method for estimating theoretical uncertainties of HEP observables with asymmetrical distributions](#)

### Weizmann Institute of Science

Rehovot, ISRAEL

Summer Research Intern

Jun 2013 - Aug 2013

- Assembled the largest collection of publicly available paired spectroscopical and photometric data from Supernovae type II<sub>n</sub> explosion, stored it in interactive web repository ([WISerEP](#)), processed the spectral lines with Gaussian deconvolution, and performed correlation analysis to elucidate the underlying explosion mechanism

## EDUCATION

- **PhD**, Computational Biology, [Carnegie Mellon University & University of Pittsburgh](#), 2018 - December 2022 (expected)
  - ▷ Coursework: Intro to Machine Learning, Probabilistic Graphical Models, Algorithms for NLP, Intro to Structural Biology, Computational Medicine, Computational Genomics, Cell & Systems Modeling, Evolutionary Biology, Lab Methods (wet lab)
- **MS**, Physics, [University of Cambridge](#), 2015 - 2016
- **BS**, Physics, [University of Belgrade](#), 2011 - 2015

## TEACHING AND MENTORING EXPERIENCE

- 2020-present - supervised undergraduates on modeling oscillatory biological networks, and COVID-19 effects on economy
- Spring 2020 - Graduate Teaching Assistant for Cellular and Systems Modeling course
- 2014-2018 - Supervised high school students on their scientific computation research projects (cellular automata for astrobiology, GEANT4DNA simulation of radiotherapy, EM algorithm applications for missing data in RNA-seq) at Petnica Science Center, SERBIA

## SELECTED PUBLICATIONS

- **Andjelnkovic, S.**, & Miskov-Zivanov, N. (2021). DiSH-trend: Intervention Modeling Simulator That Accounts for Trend Influences. arXiv preprint [arXiv:2107.01302](#). (accepted at The Winter Simulation Conference, to be presented in December 2021)
- **Andjelnkovic, S.** (2014). A comparison of  $t\bar{t}$  predictions of differential cross section with measurements performed by the ATLAS detector at LHC (No. CERN-STUDENTS-Note-2015-001).

## LANGUAGES

**English:** Fluent. **French:** Intermediate. **Spanish:** Basic. **Serbian:** Native.