

# Dunja Vucenovic

BIOINFORMATICS SCIENTIST IN CLINICAL GENOMICS

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## Current

### Illumina Inc

Cambridge, UK

#### BIOINFORMATICS SCIENTIST IN MEDICAL GENOMICS INFORMATICS GROUP

Apr 2019 - Present

Working in Medical Genomics group with Mark Ross and David Bentley

#### Principal research:

- Integrating RNA-seq expression data with clinical cancer genome analysis
- Benchmarking sensitivity of variant detection for targeted cancer panels and comparing their performance to cWGS
- Developing a method for estimation of tumour content in a sample from transcriptome data

## Experience

### ZENCODE-ITN

Imperial College London, UK

#### EARLY STAGE RESEARCHER

Oct 2015 - Mar 2019

- Supervised by Boris Lenhard
- PhD student aiming to understand spatio-temporal gene expression during zebrafish embryogenesis
- Thorough reanalysis of all publicly available mRNA *in situ* hybridisation data from zebrafish development led us to develop Anatomical specificity coefficient that tells about relative size of anatomical structures
- Elucidated the role of core promoters in regulation and gene function that is a foundation to PromoterOntology methodology
- Integrating numerous NGS datasets (RNA-seq, CAGE, ChIP-seq, ATAC-seq and scRNA-seq) with goal to understand how multiple layers of gene regulation communicate together to create final gene expression profiles. This process is crucial for early embryonic development.

### TwinsUK

King's College London, UK

#### MASTER THESIS INTERNSHIP

Jan 2015 - Jul 2015

- Supervised by Frances Williams and Tim Spector
- Developed linear mixed effect models for twin data design in analysis of complex disease - lower back pain.
- Identified new glycomic biomarkers of back pain that could be used for early detection of disease.

### CNIO

CNIO Madrid, Spain

#### INTERNSHIP STUDYING CHIMERIC RNA TRANSCRIPTS

Jun 2013 - Sep 2013

- Supervised by Milana Frenkel-Morgenstern and Alfonso Valencia
- Discovered palindromic sequence patterns that are specifically overrepresented in junctions of chimeric transcripts.

## Education

### Imperial College London

London, UK

#### PHD IN COMPUTATIONAL REGULATORY GENOMICS

Oct 2015 - Oct 2019, Viva in Jan 2020

- Marie Curie Early Stage Researcher fellowship as a part of ZENCODE-ITN
- Supervised by Boris Lenhard

### University of Zagreb

Zagreb, Croatia

#### M.SC. IN MOLECULAR BIOLOGY (5/5 GPA)

Sep 2013 - Sep 2015

- Master Thesis: The Association Between Low Back Pain and Composition of IgG Glycome
- Dean's award: Best student of the generation

### University of Zagreb

Zagreb, Croatia

#### B.SC. IN MOLECULAR BIOLOGY (4.97/5 GPA)

Sep 2010 - Sep 2013

- Bachelor Thesis: Next generation sequencing
- Rector's award for the organisation of outreach workshops at Faculty

# Programming and Data Analysis

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**Advanced** R language (and associated tools)

**Proficient** git · Python · AWS · Bash · Latex · High Performance Computing

- Experienced in package development and release; PromoterOntology R package is currently hosted on my GitHub, I plan to push it to Bioconductor in the next spring release.
- Developed and enhanced approaches and algorithms in order to process structured and unstructured data to evaluate hypotheses.
- Highly proficient in applying machine learning techniques, including neural networks.
- Experienced in big data analysis and have extensive experience in applying statistical methods.
- Skilled in communicating complex concepts, including producing publication-quality figures and written reports.

## Core qualities

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- Efficient and motivated worker, both individually and as part of a team.
- Extensive experience of completing work to a deadline.
- Good communicator and very capable public speaker. Delivered talks and poster presentations at numerous international conferences.

## Additional Activities

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### EVO - Society for Out-Of-Frame education

Croatia

CORE MEMBER & CURRENT SUMMER SCHOOL OF SCIENCE ORGANISER

Jun. 2014 - PRESENT

- I am leading the efforts to support our alumni participants through their higher education. In addition, as the leader of projects, I was particularly invested in teaching our students to think critically and to understand importance of the scientific method.
- Organisation of Summer school of Science for talented high school students in 2016 and 2019
- Project and workshop leader in 2015 with project about Personalised Medicine and in 2017 with Molecular Gastronomy project.

### RLadies London

UK

MEMBER

Sep. 2016 - PRESENT

- Supporting organisation of new events.
- Helping beginners to understand logic behind R code.

## Publications

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### • The Association Between Low Back Pain and Composition of IgG Glycome

Maxim B. Freidin, Toma Keser, Ivan Gudelj, Jerko Štambuk, Dunja Vučenović, Massimo Allegri, Tamara Pavić, Mirna Šimurina, Stella M. Fabiane, Gordan Lauc, Frances M. K. Williams; Scientific Reports, 2016

### • ChiTaRS 2.1—an improved database of the chimeric transcripts and RNA-seq data with novel sense–antisense chimeric RNA transcripts

Milana Frenkel-Morgenstern, Alessandro Gorohovski, Dunja Vucenovic, Lorena Maestre, Alfonso Valencia; Nucleic Acids Research, 2015