Djordje Djordjevic, PhD

BIOINFORMATICIAN
DATA SCIENTIST
MANAGING DIRECTOR
PROBLEM SOLVER

SNAPSHOT

- Bioinformatician in Big Pharma.
- Data Scientist with 7 years of daily R programming expertise.
- Facilitator, corporate trainer and developer in data analytics education.
- Small business owner / entrepreneur.

TELLING THE DATA STORY

I use tools such as machine learning and advanced statistics to uncover the signals hidden in complex data sets.

I enjoy creating impactful visualisations that present highly technical and multi-layered results in a compelling format - the data will often speak for itself, if you can give it a voice.
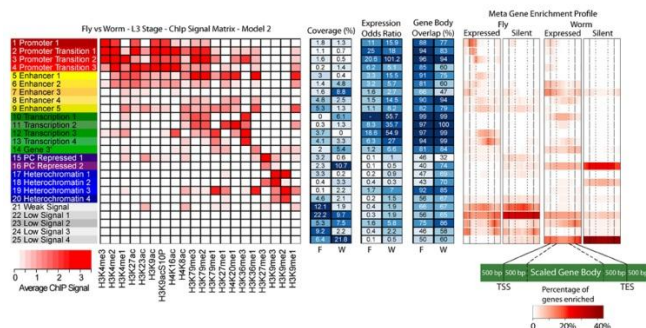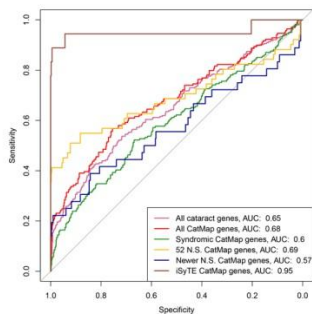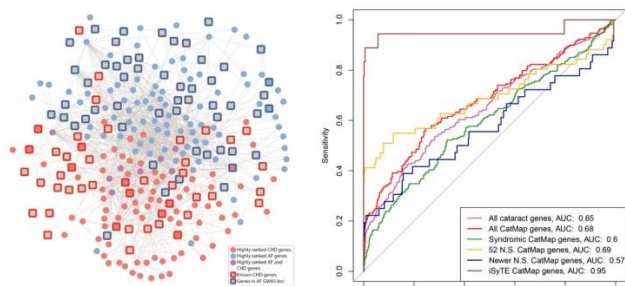
CONTACT

djordje.evic@gmail.com

EDUCATION

PhD Bioinformatics - Victor Chang Cardiac Research Institute, 2014 - 2017

BEng Bioinformatics (Hons) - University of New South Wales, 2006 –2013

RELEVANT WORK EXPERIENCE

Computational Biologist @ Novo Nordisk 2018 –

I am becoming an expert in bioinformatics driven drug target discovery and validation in cardiovascular diseases, using clinical, genetic, multi-omics and functional data. I have been involved in many aspects of the pharmaceutical industry, including critically evaluating and guiding collaborations, opportunities and assets.

Bioinformatics researcher @ VCCRI 2013 – 2018

I understand data cleaning, machine learning, modelling, statistics, clustering, time series analysis, integrative network analyses, pipelines and data visualisation.

I am an author on over 10 peer-reviewed publications with 120+ citations and have presented at international conferences. See my academic CV below.

Facilitator / Developer @ Decoded 2015 - 2018

I combined my deep technical knowledge with excellent communication and leadership skills in my role as a facilitator and data-expert at Decoded, one of the world's leading tech education companies. Past clients include:

Founder / M. Director @ Jump Squad 2011 -

I created Australia's leading provider of Parkour and Freerunning services, including training, performances and facility design. Since starting the company, I have negotiated and managed over $300,000 in revenue. I understand the business world, teamwork, delivering to a deadline and effective communication with stakeholders. Past clients include:

RECREATIONAL

In my down time I like to go on adventures, travel, train Parkour, make films, build websites, read, learn, play football, snowboard, spend time with family and friends... and do random data analyses!

REFERENCES – available on request

DJORDJE DJORDJEVIC
Copenhagen
djordje.evic@gmail.com

Objective: Pursue a career in the biological sciences where I can apply the power of computers to solving complex biological problems. Science is my passion and the power of computers to change the world is undeniable. I hope to contribute specifically to the fields of genotype / phenotype correlation and epigenetic control modelling to facilitate the future of synthetic and regenerative biology.

EDUCATION

Doctor of Philosophy (PhD) - 12 September 2017
Computational methods for analysing the regulation of genetic systems across species
Faculty of Medicine - University of New South Wales

Bachelor of Engineering (Bioinformatics) (Honours) - 4 November 2013
Phenotype prediction using data mining and machine learning techniques
Faculty of Computer Science and Engineering - University of New South Wales

EMPLOYMENT

Computational Biologist, Novo Nordisk, 15 October 2018 - Present
I am currently working as a computational biologist specialising in drug target discovery and validation in cardiovascular diseases at Novo Nordisk in Copenhagen, a $100B pharmaceutical company.

Student Intern / Research Assistant / PhD Student / Postdoctoral Scientist, Victor Chang Cardiac Research Institute, 3 April 2013 - 2 March 2018
My doctoral research was with the Victor Chang Cardiac Research Institute, a partner of the University of New South Wales.

Facilitator, Developer, Decoded, 2 April 2015 - 15 October 2018
I was a casual workshop facilitator and content developer for Decoded, specialising in delivering data analytics and coding foundational courses to commercial clients.

Managing Director, Jump Squad Pty Ltd, 17 November 2011 - Present
My company Jump Squad is Australia's leading provider of Parkour and Freerunning services, including performances, workshops, facility designs and training programmes.

Various, 2003 - 2011

PUBLICATIONS
Citations: 146   h-index: 6

The emerging biology of GDF15 and potential therapeutic applications for cardiometabolic disease
Dongdong Wang, Emily A Day, Logan K Townsend, Djordje Djordjevic, Sebastian B Jorgensen, Gregory R Steinberg
Nature Reviews Endocrinology (2021) Accepted

A neutralizing antibody against DKK1 does not reduce plaque formation in classical murine models of atherosclerosis: Is the therapeutic potential lost in translation?
Gunaj Rakipovski, Bidda rolin, Natasha Barascuk, Heidi E Lund, Mathilde Frederikke Bjorn Bonde, Djordje Djordjevic ... Karin Konde-Knape, Ulf Hedin, Ljubica Matic, Michael Nyberg
Atherosclerosis (2020) 314, 1-9

CardiacProfileR: An R package for extraction and visualisation of heart rate profiles from wearable fitness trackers
Djordje Djordjevic, Beni K Cawood, Sabrina K Rispin, Leo HH Yim, Christopher S Hayward, Joshua WK Ho
Biophysical reviews (2019) 11 (1), 119-121

Discovery of perturbation gene targets via free text metadata mining in Gene Expression Omnibus
Djordje Djordjevic, Joshua YS Tang, Yun Xin Chen, Shu Lun Shannon Kwan, Raymond WK Ling, Gordon Qian, Chelsea YY Woo, Samuel J Ellis, Joshua WK Ho
Computational biology and chemistry (2019) 80, 152-158

C3: An R package for cross-species compendium-based cell-type identification
Md Humayun Kabir, Djordje Djordjevic, Michael D O'Connor, Joshua Ho
Computational biology and chemistry (2018) 77, 187-192

Light-focusing human micro-lenses generated from pluripotent stem cells model lens development and drug-induced cataract in vitro
Patricia Murphy, Md Humayun Kabir, Tarini Srivastava, Michele E Mason, Chitra U Dewi, Seakcheng Lim, Andrian Yang, Djordje Djordjevic, Murray C Killingsworth, Joshua WK Ho, David G Harman, Michael D O'Connor
Development (2018), 145 (1), dev155838

Identification of satellite cells from anole lizard muscle and demonstration of increased musculoskeletal potential
Joanna Palade*, Djordje Djordjevic*, Elizabeth D. Hutchins, Rajani M. George, John A. Cornelius, Alan Rawls, Joshua W.K. Ho, Kenro Kusumi, and Jeanne Wilson-Rawls (* indicates co first authors)
Developmental biology (2018), 433 (2), 344-356

iSyTE 2.0: a database for expression-based gene discovery in the eye
Atul Kakrana, Andrian Yang, Deepti Anand, Djordje Djordjevic, Deepti Ramachandruni, Abhyudai Singh, Hongzhan Huang, Joshua W K Ho, Salil A Lachke
Nucleic acids research (2017), 46 (D1), D875-D885

XGSA: a statistical method for cross-species gene set analysis
Djordje Djordjevic, Kenro Kusumi, Joshua W. K. Ho
Bioinformatics (2016), 32 (17): i620-i628

hiHMM: Bayesian non-parametric joint inference of chromatin state maps
Kyung-Ah Sohn, Joshua W. K. Ho, Djordje Djordjevic, Hyun-hwan Jeong, Peter J. Park and Ju Han Kim
Bioinformatics (2015), 27/02/15, pii: btv117

Decoding the complex genetic causes of heart diseases using systems biology
Djordje Djordjevic, Vinita Deshpande, Tomasz Szczesnik, Andrian Yang, David T. Humphreys, Eleni Giannoulatou, Joshua W. K. Ho
Biophysical Reviews (2015), 10/12/14, 7:141159

How difficult is inference of mammalian causal gene regulatory networks?
Djordje Djordjevic, Andrian Yang, Armella Zadoorian, Kevin Rungrugeecharoen, Joshua W. K. Ho
PLOS ONE (2014), 4/11/14, 9(11):e111661

BOOK CHAPTERS
Epigenomic analysis of chromatin organization and DNA methylation
Xin Wang, Helen McCormick, Djordje Djordjevic, Eleni Giannoulatou, Catherine M Suter, Joshua WK Ho, in Computational Biology Bioinformatics Gene Regulation (2016) (Ed. Wong KC). CRC Press. ISBN 9781498724975 - CAT K25752

CONFERENCE PRESENTATIONS

Transcription Factors Driving Postnatal Cardiomyocyte Maturation
Amy M Nicks, David T Humphreys, Sara R Holman, Andrea Y Chan, Djordje Djordjevic, Nawazish
Naqvi, Ahsan Husain, Nicola J Smith, Joshua W Ho, Siiri E Iismaa, and Robert M Graham
American Heart Association 2018 - **Selected oral presentation and poster**

The involvement of healthcare professionals in the diversion of pharmaceuticals in Australia
S Hulme, D Djordjevic, C Hughes, S Nielsen
Drug and Alcohol Review 2017 - **Selected oral presentation and poster**

XGSA: a statistical method for cross-species gene set analysis
Djordje Djordjevic, Kenro Kusumi, Joshua W. K. Ho
European Conference on Computational Biology 2016 - **Selected oral presentation and poster**
International Conference on Systems Biology 2016 - **Poster**
Australian Bioinformatics and Computational Biology Society Conference 2015 - **Selected oral presentation and poster**

GEOracle: Harnessing GEO to discover mammalian causal gene regulatory networks
Djordje Djordjevic, Yun Xin Chen, Raymond Ling, Gordon Qian, Chelsea Woo, Joshua W. K. Ho
Sydney Bioinformatics Research Symposium 2016 - **Poster and short oral presentation**

Harnessing a large collection of gene perturbation data to discover mammalian causal gene regulatory
networks
Djordje Djordjevic, Andrian Yang, Shu Lun Shannon Kwan, Joshua W. K. Ho
Intelligent Systems for Molecular Biology / European Conference on Computational Biology 2015 &
COMBINE Student Symposium 2015 - **Poster**

Co-expression based regulatory network for lens development
Atul Kakrana, Djordje Djordjevic, Andrian Yang, Deepti Anand, Abhyudai Singh, Cathy Wu, Blake
Meyers, Joshua Ho, Salil Anil Lachke
Association for Research in Vision and Ophthalmology 2015 - **Selected oral presentation and poster**

Comprehensive analysis of chromatin landscape in filamentous fungus
Djordje Djordjevic, Vinita Deshpande, Kaeling Tan, Koon Ho Wong, Joshua W. K. Ho
Australian Pathogen Bioinformatics Symposium 2014 - **Selected oral presentation**

Harnessing sparse gene perturbation data to discover causal gene regulatory networks
Djordje Djordjevic, Andrian Yang, AmirHossein Kamali, Joshua W. K. Ho
International Conference on Systems Biology 2014 - **Poster**

Constructing causal gene regulatory networks to investigate organ development and disease
Djordje Djordjevic, Andrian Yang, Vinita Deshpande, Tomasz Szczesnik, Joshua W. K. Ho
St Vincent's Research Symposium 2014 - **Poster**
Australian Bioinformatics Conference 2014 - **Poster**

A systems biology framework for prioritisation of pathogenic genes
Djordje Djordjevic, Joshua W. K. Ho
Sydney Bioinformatics Research Symposium 2014 - **Poster and short oral presentation**

iSyte: a web-resource of curated lens gene regulatory networks reveals the interplay of diverse pathways
in ocular development and disease
Deepti Anand, Djordje Djordjevic, Sylvie Smith, Joshua W K. Ho, Salil A. Lachke
Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO) 2014 - **Poster**

Transcriptional profiling and integrative analysis of cardiomyocyte stretch response
Djordje Djordjevic, Vesna Nikolova-Krstevski, Mirana Ramialison, Ashley Waardenberg, Joshua W.
K. Ho, Diane Fatkin
St Vincent's Research Symposium 2013 - **Poster**

Chromatin state analysis in model organisms
Djordje Djordjevic, Chris Wong, Joshua W. K. Ho
Sydney Bioinformatics Research Symposium 2013 - **Poster and short oral presentation**

AWARDS
International Society for Computational Biology - Travel fellowship to attend ECCB 2016 - €900
Victor Chang Cardiac Research Institute - Best student talk Paul Korner seminar series 2015 - $500
Australian Pathogen Bioinformatics Conference - Travel fellowship 2014 - $300
Australian Bioinformatics Conference - Travel bursary 2014 - $400
Australian Bioinformatics Winter School - Travel bursary 2013 - $250

SOFTWARE AND WEBSITES
GEOracle: Mining the GEO database for perturbation data sets - http://georacle.victorchang.edu.au/
XGSA: a statistical method for cross-species gene set analysis - https://github.com/VCCRI/XGSA
CardiacCode - http://cardiaccode.victorchang.edu.au/
iSyTE 2.0 - http://research.bioinformatics.udel.edu/iSyTE
CardiacProfiler: Extraction and visualisation of heart rate profiles from wearable fitness trackers - https://github.com/VCCRI/CardiacProfileR
C3: Cross-species compendium-based cell-type identification - https://github.com/VCCRI/C3

SKILLS

I am a highly motivated learner and am always eager to learn new skills.

Pharmaceutical Industry
During my time at Novo Nordisk I have learned many of the fundamentals of the pharmaceutical industry. As the bioinformatics anchor within the cardiovascular therapy area, I have focused on *in silico* drug target discovery and validation, been technical lead on 30M dkk+ worth of multi-omics based external collaborations, designed experiments and analysed the results as drug targets move through the pipeline towards the first human dose of an API.

I am a driver of various digitisation and data-driven discovery strategies, and I have created and delivered a 3 day course on Demystifying Bioinformatics to over 120 colleagues. I have discussed biomarker strategies including digital biomarkers, PK and PD considerations, dosing, molecular formats and clinical trial mechanisms including consent, sampling and analysis. I have been closely involved in the critical evaluation of many external collaborations, cohorts, companies and assets. This is an ongoing learning process that I am thoroughly enjoying.

Bioinformatics / Data Analysis
I have a growing skillset in the field of Bioinformatics, developed over the course of my doctoral research and professional employment. I have become proficient in comprehensive transciptomics (nanostring, microarray, RNA-Seq and scRNA-Seq) analysis, disease gene prioritisation (GWAS, eQTL), cross-species chromatin landscape (ChIP-Seq) and gene set / pathway comparisons, image analysis and gene regulatory network inference and analysis, amongst many other projects. I also have limited experience working with financial data.
I am adept at combining concepts from statistics with machine learning approaches and novel ideas to gain insights from large and complex data sets and solve real world data problems.

Computer Proficiency
I am a native R programmer, comfortable in Perl, Python, Shell, Latex, HTML, CSS, Javascript, and have limited experience with Java, OpenGL, C, PHP, Prolog and Basic. I have a working knowledge of relational-databases and biological knowledgebases. I am comfortable with Microsoft Office, Open Office and the Adobe software suites, and working in Windows, Mac OSX and Linux. I have well developed internet research and navigation skills.

Communication
I am experienced in applying effective communication techniques to maximise understanding, solve problems and resolve conflicts. I've gained these skills throughout my life as a Parkour instructor and community leader, a corporate workshop facilitator, a retail professional, a foot-

ball referee, a business owner and most recently a scientist working in industry. Additionally my language and communication skills have developed through a passion for reading, growing up in a multi-lingual household and travelling through Asia and Europe extensively.

Throughout my professional and academic career numerous presentations and projects have enabled me to further refine these skills. Specifically, I have authored scientific manuscripts, presented my research at national and international conferences as both oral and poster presentations, supervised 12 undergraduate research students and trained colleagues in new skills and concepts. I delivered several award winning presentations during my PhD.

Supervisory Roles

I have supervised two masters students, three honours students and 9 summer scholarship students over the course of my research. 10 of these students became co-authors on my publications.

Laboratory Experience

I have over 200 hours of chemistry and biology laboratory practical work experience during which I learned many standard laboratory techniques. As a result I am comfortable handling potential biological hazards and working with common laboratory equipment.

Photography and video production

Since I was young I have enjoyed photography and this has developed into a passion during my lifetime. I have been involved in many photography and videography projects, paid and unpaid, including being the de-facto photographer for events at the Victor Chang Cardiac Research Institute, training the media staff to take photos, creating videos for the use of the institute, and many non-science related videography projects which have amassed millions of views.

PROFESSIONAL AFFILIATIONS

American Heart Association (Member)
International Society for Computational Biology (ISCB) (Member)
Australian Bioinformatics and Computational Biology Society (Member)
COMBINE / ISCB Students Australia (Former committee Member)

Non-science related

Australian Parkour Association (Founding committee member)
Parkour New South Wales (Founding member)

OTHER QUALIFICATIONS

Construction Induction (White Card), 2010
Working with Children Check, 2010
Responsible Service of Alcohol, 2010
Responsible Conduct of Gambling, 2010
Senior First Aid (Level 2), 2009

REFERENCES

Dr. Martijn van de Bunt, Director Bioinformatics and Data Mining (former), Novo Nordisk

A/Prof. Joshua Ho, Head Bioinformatics and Systems Medicine Laboratory (former),

Prof. Diane Fatkin, Head Inherited Heart Diseases Laboratory, VCCRI

Prof. Kenro Kusumi, Associate Dean of Research, College of Liberal Arts and Sciences, ASU