



Insights from the Centre for Social Data Analytics - August 2018

CSDA's research and analytics tools are used by local and international agencies to support smart policy and sound decision-making in areas including health and social welfare. This issue: Allegheny Family Screening Tool work highlighted in a *Nature News* article and podcast, Rhema discusses potential child welfare predictive-risk models with experts in Chile and Denmark, and meet our Research Fellow Oleksandr Fialko.

CSDA News & Appointments

CSDA predictive risk models feature in *Nature News*

In June, [a comprehensive article](#) and [podcast](#) on *Nature News* discussed the ways researchers including Rhema Vaithianathan are working towards lessening bias in algorithms.

CSDA Team News

Our Data Science team recently welcomed **Katerina Taškova**, who has a PhD in Computer Science and will focus on predictive risk modeling work for Allegheny County, PA. In June we welcomed **Shae Reichfeld**, who has joined CSDA as a Communications Intern and **Bharati Koli** rejoined CSDA as a Software Developer on a casual basis. We are pleased to announce that **Larissa Lorimer** has accepted a new role as CSDA's business development adviser, starting August and **Julia Mackenzie** will join the team in early September, as an administrative co-ordinator. **Terence Cheng** from the University of Adelaide visited CSDA from May-July to complete research funded by his 2018 Endeavour Research Fellowship from the Australian Government, investigating the impact of adverse health events on the economic well-being of elderly individuals. And one of our PhD students, **Sahar Barmomanesh**, recently won a Faculty of Business, Economics and Law Doctoral Fees Scholarship; an award, provided to exceptional students. Find out more about our team [here](#).

Meet Research Fellow Oleksandr Fialko

A background in physics is an essential tool for Oleksandr Fialko who joined CSDA last year as a Research Fellow in Data Science and is working to improve the accuracy of models being used to predict child welfare outcomes.

LinkedIn chief scientist DJ Patil once said that the best scientists tend to be hard scientists, particularly physicists, who come from a discipline where it is vital to get the most from the data.

Oleksandr says since joining CSDA, he has 'realised how dirty the real data can be' and so his work is focused on trying to understand and clean the data.

"Recently, thorough cleaning of a dataset in our homelessness project in Allegheny led to a dramatic increase in accuracy."



“For me, data analysis and machine learning are not only about cool techniques. More importantly, I believe they can produce useful predictions for our life from the data that has been collected.”

“Intensive human effort is needed to make the data tell a story and, in most cases, it is challenging. But, that is where it is intriguing. I am dedicated to hunting for the treasures in the data that can make a real difference.”

[Read the full profile on the CSDA website.](#)

Research Insights

Allegheny Homelessness Predictive Risk Model

CSDA researchers continue to work with the Allegheny County Department of Human Services on the possible use of predictive risk modeling to address homelessness. The models under consideration and development include one that would allow early intervention when the risk of homelessness is high, and another that would allow the County to better prioritise requests for homelessness services. Work continues to refine the models and explore possible points and means of intervention.

MyDay Workplace Wellbeing Survey

CSDA is working with researchers from the University of Southampton, City, University of London, the University of Zurich and Health Education England (HEE) Working across Wessex on a study aimed at understanding the workplace wellbeing of trainee doctors. Following on from a successful pilot study in November 2017, the researchers have invited 2000 trainee doctors from all fields of medicine to participate in the study. Trainee doctors who take part are asked about the tasks they performed during the working day and how they felt while doing them, allowing researchers to create a rich set of data that can be used to improve workplace wellbeing. [Read more](#)

Update to NZ Guidelines for Trusted Data Use

Along with two other former members of the Data Futures Partnership Working Group, Rhema Vaithianathan is working to gather feedback on the NZ Guidelines for Trusted Data Use and further refine the Guidelines to ensure they are as useful as possible for New Zealand organisations.

[Learn more about the Guidelines and the update project](#)

Helping NZ Government to develop Algorithm Guidelines

The NZ Government Chief Data Steward, Liz McPherson, has commissioned Professor Rhema Vaithianathan to review international guidelines for the government use of algorithms, and help develop a ‘best practice’ approach for New Zealand. [Read more](#)

Community perspectives on the use of algorithms by government

This pilot study of New Zealanders’ and Americans’ comfort with algorithmic decision-making in public services relies on facilitated conversations with affected communities. Researchers, including Rhema Vaithianathan, are investigating whether guidelines can be created in collaboration with the community for the fair use of algorithms in welfare systems in the USA and New Zealand. The project has received funding from a subsidiary group of the International Association for Computing Machinery: The Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD). Interim findings from this project will be presented at the KDD Conference in London this August.

Wellbeing of Indigenous youth in the Northern Territory (Australia)

Rhema Vaithianathan is an Associate Investigator on a five year research project recently funded by the Australian Government National Health and Medical Research Council under a Targeted Call for Research into Indigenous Social and Emotional Wellbeing. The study, ‘Against the odds: Understanding the factors influencing wellbeing among Indigenous youth in the Northern Territory’, is led by Associate Professor Stefanie Schurer, University of Sydney.

Spreading the word on data analytics

Our team is committed to increasing awareness and understanding of data analytics. Here are some recent links featuring our experts and their work:

- [“Bias detectives: the researchers striving to make algorithms fair”](#) Nature (News Feature), June 2018, takes an in-depth look at the tools that CSDA has helped to develop, and the ways in which scientists are responding to questions about what makes an algorithm fair.
- [“Podcast: Pancreatic cancer, silica cages, and AI bias”](#) Nature (Podcast), June 2018, includes discussion with Rhema Vaithianathan on algorithmic bias, transparency and fairness.
- [“Can an algorithm keep kids safe?”](#) Innovation Hub, June 2018, includes extended discussion with Rhema Vaithianathan and Emily Putnam-Hornstein (Children’s Data Network, USC) about how the Allegheny Family Screening Tool works.
- [“Could big data have saved Anthony Avalos' life?”](#) LA Times (Op Ed), June 2018, explores the transparency demonstrated by the Allegheny Family Screening Tool and suggests that child welfare agencies like the Los Angeles County Department of Children and Family Services should continue to investigate the potential of predictive analytics for child welfare.

Recent publications from the CSDA team

He awa whiria—braided rivers: Understanding the outcomes from Family Start for Māori

In Aotearoa New Zealand the “braided rivers—he awa whiria” metaphor is facilitating conversations between Māori (indigenous peoples) and non-Māori researchers about the integration of knowledge systems. Rhema Vaithianathan, Tim Maloney and their co-authors explore how an approach based on he awa whiria can work in practice in the examination of the efficacy for Māori whānau (families) of the government’s intensive home-visiting programme, Family Start. Published in *Evaluation Matters—He Take Tō Te Aromatawai Online First*.

[Read the article](#)

Estimating the economic costs of ethnic health inequalities: protocol for a prevalence-based cost-of-illness study in New Zealand (2003-2014), June 2018

Rhema Vaithianathan is a co-author on this protocol, for a study about health inequities between the indigenous Māori and non-Māori populations of New Zealand. The study will focus on the economic costs associated with these differences. The article is published on *BMJ Open*.

[Read the protocol](#)

Labour market effects of activating sick-listed workers, April 2018

Bénédicte Rouland and her co-authors use data from a large-scale, randomized controlled trial conducted in Danish job centres to investigate the effects of activating sick-listed workers on subsequent labour market outcomes. Comparing treated and controls, the authors find an overall unfavourable effect on subsequent labour market outcomes. Published in *Labour Economics*.

[Read the article](#)

The impact of Social Workers in Schools: A preliminary investigation using linked administrative data, February 2017

The Ministry of Social Development recently published this 2017 working paper, co-authored by AUT’s Nan Jiang, Tim Maloney, Anita Staneva and Rhema Vaithianathan, along with a companion working paper that utilised the integrated data infrastructure (IDI). Both studies show encouraging indications of positive impacts.

[Read the working paper](#)

Events and outreach

To help advance the understanding and effectiveness of social data analytics, our researchers continue to share and exchange knowledge with local and international colleagues and agencies:

In May, Rhema Vaithianathan, Erin Dalton and Marc Cherna (Allegheny County Department of Human Services) spoke at the **Casey Family Programs Child Safety Convening** in Arizona. Representatives from 25 US States and jurisdictions attended the convening to learn about innovative strategies for improving child safety and reducing child maltreatment-related fatalities.

Also in May, Rhema Vaithianathan and child welfare leaders from Allegheny County, PA, and Douglas County, CO, spoke at the **American Public Health Services Association Summit** on the topic of child welfare decision making using predictive risk models ([view presentation](#))

Rhema Vaithianathan gave a keynote presentation on child welfare predictive risk models at the **Adolfo Ibáñez University (UAI) in Santiago, Chile** in May. Along with CSDA research fellow Diana Benavides-Prado, Rhema discussed the use of data science to improve systems relating to the investigation of child abuse referrals. This was timely given the Chilean government's plans to create a child welfare early warning system, named 'Childhood Alert'.

Tim Maloney, Diana Benavides-Prado and Matt Walsh presented a session on CSDA projects at the **New Zealand Association of Economists Annual Conference 2018** in Auckland, NZ, in June.

Also in June, Rhema Vaithianathan gave a seminar - 'Predictive Risk Models for Targeting and Population Stratification of Children at Risk of Adverse Outcomes' - at the **TrygFonden's Child Research Centre at Aarhus University, Denmark**.

In August, CSDA collaborator Anna Brown (Toi Āria, Massey University, Wellington, NZ) will present interim results from the 'Community Perspectives on the use of algorithms by the Government in NZ and the USA' project at the [SIGKDD Conference on Knowledge Discovery and Data Mining](#) in London.

In September, Rhema Vaithianathan will present on the topic of 'Challenges in the use of Predictive Risk Models for Child Welfare' at the [Strengthening Child Safety and Wellbeing through Integrated Data Solutions Conference](#), sponsored by Pennsylvania State University's Child Maltreatment Solutions Network.

Also in September, CSDA research fellow Matt Walsh will present new findings from a study that used Growing up in New Zealand longitudinal study (GUiNZ) data and was funded by the Children and Families Research Fund: **'Protective factors of children and families at highest risk of adverse childhood experiences: An analysis of children and families in the GUiNZ data who "beat the odds"'**. This seminar will be hosted by the Ministry of Social Development in Wellington – look out for details on the [CSDA website](#).

Rhema Vaithianathan will present a session entitled 'Predictive Risk Modeling; A Douglas County Decision Enhancing Tool' with partners from Douglas County Department of Human Services at the [Alliance for Strong Families and Communities National Conference](#) in Denver, Colorado in October.

Rhema Vaithianathan will attend [CityLab Detroit](#) in October, to speak on panels about the use of predictive risk modeling for child welfare and homelessness prevention.