VALERIA KEBETS

Data Scientist | Computational Neuroscientist

valkebets@gmail.com valkebets.github.io linkedin.com/in/valkebets

ABOUT

Computational neuroscientist with over 10 years of academic experience. Experienced in managing large datasets, statistical modeling including machine learning and deep learning, coding, and conveying complex results to a range of audiences and stakeholders. Seeking to apply my expertise toward devising innovative AI-driven solutions to tackle various challenges.

EXPERIENCE

Postdoctoral Research Scientist

McGill University

01/2021 – Present Montreal, Canada

- Led several research programs that required management of large datasets (N>10,000), processing of neuroimaging data, statistical data analysis including machine learning, data visualization, generating research reports, and dissemination to scientific and lay audiences
- Wrote reproducible Python, R, and MATLAB code on McGill University's high-computing systems
- Collaborated with engineers, clinicians and neuroscientists
- Mentored 3 undergraduate and graduate students

Postdoctoral Research Scientist

National University of Singapore

08/2017 – 07/2020 Singapore

- Led research projects to identify shared biological markers across psychiatric disorders using machine learning
- Co-developed an open source toolbox for unsupervised learning
- Co-organized a neuroscience conference and a hackathon
- Taught a course on unsupervised machine learning at the Organization for Human Brain Mapping Annual Meeting

Graduate Research Assistant

University of Geneva

03/2012 – 11/2016 Geneva, Switzerland

- Led several research projects to predict early diagnosis of Alzheimer's disease using machine learning and neuroimaging data
- Collected clinical and MRI data in >100 elderly individuals at risk for Alzheimer's disease
- Facilitated liaisons between engineers, neurologists, neuropsychologists and cognitive neuroscientists

CERTIFICATIONS

Deep Learning Specialization (Coursera)

EDUCATION

Ph.D. in Neuroscience

University of Geneva

2012 – 2016 Geneva, Switzerland

- Advisors: Prof. Dimitri Van De Ville and Prof. Frederic Assal
- Thesis: Functional imaging markers of the MCI brain in task and at rest: detecting memory and connectivity impairments in prodromal Alzheimer's disease
- Keywords: neuroimaging, machine learning, prediction, biomarker development

M.Sc. in Clinical Neuroscience

University College London

2009 – 2010 London, United Kingdom

- Advisor: Prof. David J. Werring
- Thesis: Neuroimaging correlates of vascular cognitive impairment: prevalence and functional significance of mesial temporal lobe atrophy
- Keywords: neuroimaging, stroke, cognition, radiological marker

B.Sc. in Psychology

University of Geneva

2006 – 2009 Geneva, Switzerland

SKILLS

Python | Scikit-learn | PyTorch | Jupyter | R | MATLAB | Bash | Linux | Git

machine learning | deep learning | statistics | big data | data mining | data visualization | scientific software development | scientific writing | detail-oriented | problem solving | autonomy | adaptability | leadership | teaching/mentoring | collaboration | effective communication

LANGUAGES

French
English
Russian

SELECTED HONORS AND AWARDS

Jeanne Timmins Costello Fellowship from the Montreal Neurological Institute (**40'000 CAD**) for the project *"A multimodal and dimensional approach to study typical and atypical neurodevelopment"* (2022-2023)

Travel awards (total ~6,000 CAD) from the Quebec Bio-Imaging Network, Swiss National Science Foundation, Jean-Falk Vairant Foundation, and Lemanic Neuroscience Doctoral School to attend international conferences (2012-2022)

Finalist for Somerfeld-Ziskind Research Award, recognizing outstanding research investigations in biological psychiatry (2021)

Quebec Autism Research Training Fellowship from the Transforming Autism Care Consortium (**40'000 CAD**) for the project *"Neurodevelopmental subtypes informed by hierarchical brain network features"* (2021)

Project grant from the Boninchi Foundation (**75'000 CHF**) for the project *"A multimodal marker to predict the progression to Alzheimer's disease"* (2016)

Scholarship (**10'000 CHF**) from the Association Suisse des Femmes Diplômées des Universités (2015)

Travel Mobility Grant (**11'600 CHF**) from the Swiss National Science Foundation to visit the Functional Imaging in Neuropsychiatric Disorders Lab, Stanford University, Stanford, CA, USA (2013-2014, 6 months)

SELECTED INVITED TALKS

- Unsupervised machine learning approaches in psychiatric neuroimaging, Organization for Human Brain Mapping Annual Meeting (Singapore 2018, Virtual 2020)
- Identifying transdiagnostic patterns of neural dysfunction, Feindel Brain Imaging Lecture Series, Montreal, Canada (2019)
- Somatosensory-motor dysconnectivity spans multiple transdiagnostic dimensions of psychopathology, Organization for Human Brain Mapping Annual Meeting, Rome, Italy (2019)
- Connectivity-mediated dimensions of psychopathology across mental health and disease, Summer Whistler Scientific Workshop on Brain Functional Organization, Connectivity and Behavior, Noosa, Australia (2019)
- Multivariate and predictive modelling of neural variability in mild cognitive impairment, International Workshop on Pattern Recognition in Neuroimaging, Singapore (2018)
- Predicting pure amnestic mild cognitive impairment conversion to Alzheimer's disease using joint modeling of imaging and clinical data, International Workshop on Pattern Recognition in Neuroimaging, Stanford, CA, USA (2015)
- Structural and functional alterations in presymptomatic Alzheimer's disease revealed by multivariate pattern analysis, Annual Meeting of the Society for Neuroscience, San Diego, CA, USA (2013)

SELECTED PUBLICATIONS

1. **Kebets V**, et al. Multimodal neural correlates of childhood psychopathology. *BioRxiv (2023).*
2. Park B, **Kebets V**, et al. Multiscale neural gradients reflect transdiagnostic effects of major psychiatric conditions on cortical morphology. *Communications Biology (2022), 5(1), 1-14.*
3. Chen J*, Tam A*, **Kebets V**, et al. Shared and unique brain network features predict cognitive, personality, and mental health scores in the ABCD study. *Nature Communications (2022), 13, 2217.*
4. Benkarim O, Paquola C, Park B, **Kebets V**, et al. Population heterogeneity in clinical cohorts affects the predictive accuracy of brain imaging. *PLOS Biology (2022), 20(4), e3001627.*
5. **Kebets V**, et al. Fronto-limbic neural variability as a transdiagnostic correlate of emotion dysregulation. *Translational Psychiatry (2021), 11, 545.*
6. **Kebets V**, et al. Somatosensory-motor dysconnectivity spans multiple transdiagnostic dimensions of psychopathology. *Biological Psychiatry (2019), 86, 779-91.*
7. **Kebets V**, et al. Multivariate and predictive modelling of neural variability in mild cognitive impairment. *8th International Workshop on Pattern Recognition in Neuroimaging (2018).*
8. **Kebets V***, Wegrzyk J*, et al. Identifying motor functional neurological disorder using resting-state functional connectivity. *Neuroimage: Clinical (2018), 17, 163-8.*
9. **Kebets V**, et al. Predicting pure amnestic mild cognitive impairment conversion to Alzheimer's disease using joint modeling of imaging and clinical data. *5th International Workshop on Pattern Recognition in Neuroimaging (2015).*
10. **Kebets V***, Gregoire SM*, Charidimou A*, et al. Prevalence and cognitive impact of medial temporal atrophy in a hospital stroke service: retrospective cohort study. *International Journal of Stroke (2015), 10(6), 861-7.*

* Authors contributed equally