Postdoctoral research in applied Bayesian deep learning

We seek exceptional postdoctoral candidates to be hosted at Faculty of Dental Medicine and Oral Health Science, McGill University, Montreal, QC. These positions have an initial term of one year with the possibility of extension. The starting date is flexible, but no later than Fall 2022.

Project description:
Uncertainty in machine learning based prediction algorithms is a growing concern, especially in health science applications. This project will explore the possibility of using Bayesian deep learning models to quantify uncertainty levels and compare them with human uncertainty levels in predicting oral health related outcomes. Uncertainty quantification in deep learning is a rapidly growing sub-field and this position will offer the opportunity to work with our diverse team of researchers, including our international collaborators for applying latest developments in the field. This project offers great potential for you to publish, both methodological papers within the statistics/machine learning community as well as applied papers in health sciences. Dentistry further offers a wide array of opportunities of applied machine learning projects with decades of robust digital data availability.

Minimum Qualifications

- PhD in Statistics, mathematics, data science or related field, with a focus in deep learning, completed within the past five years or will have completed all PhD requirements by commencement of appointment.
- Knowledge and experience in Bayesian methods and computing, ideally in health science applications (variational inference, MCMC methods, etc.)
- Familiarity with image processing and classification using deep learning or active learning techniques
- Demonstrated ability to work collaboratively in an applied health research team

Required Skills:

- Statistical programming in R or Python
- Probabilistic programming in Stan or TensorFlow probability or Pytorch (Pyro)
- A track record of relevant publications at top machine learning or computer vision conferences (NIPS, ICML, UAI, JMLR, CVPR, ICCV, PAMI, IJCV, IEEE IT) and/or top-ranked image processing or health research journals is essential.

Desired skills:

- Uncertainty quantification in deep learning for computer vision in health research
- Familiarity working with HPC environments, ideally Compute Canada resources
• A firm grasp of approximate Bayesian machine learning and/or advanced (medical) image processing is a plus.

Name of immediate supervisor: Sreenath Madathil, Assistant Professor
Work schedule: Full time, Monday to Friday,
Working hours: 9.00 am to 5.00 pm, (35hrs/ week)
Duration: 1-year initial appointment with opportunity to renew.
Location: 2001 McGill College Ave, Montreal, QC, H3A 1G1
Salary: $34, 611 to $45,000
Planned start date: As soon as possible

Application package must include the following:
• Curriculum vitae (including publications)
• Cover letter stating the motivation, interests, and qualifications for the position.
• Names and contact information of 3 references.

Use the following links for application:
For McGill internal candidates: https://wd3.myworkday.com/mcgill/d/inst/15$392530/9925$32925.html