IPNet Digest Volume 27, Number 09 August 14, 2020 Today's Editor: Patricia (Patti) K. Lamm, Michigan State University Today's Topics: Pre-PhD Position: Machine Learning in Medicine, using Parameter Identification Professorship: Mathematical Data Analysis, including Inverse Problems Postdoc: Machine Learning, including Signal/Image Processing Table of Contents: Inverse Problems in Science and Engineering Submissions for IPNet Digest: Mail to ipnet-digest@math.msu.edu Information about IPNet: http://ipnet.math.msu.edu From: Martin Holler <martin.holler@uni-graz.at> Subject: Job announcement: PhD Position Date: July 28, 2020

Dear Colleagues,

I would like to draw your attention to the following job announcement for a PhD position.

Best regards, Martin Holler

The Institute of Mathematics and Scientific Computing at the University of Graz is looking for a

*** Project Assistant without doctorate ***

(30 hours a week; fixed-term employment for the period of 3 years; position to be filled as of October 1st 2020)

The position is part of a research project on machine learning approaches for data-driven cardiopulmonary resuscitation. The project will be realized in close collaboration with the University Hospital Graz, and aims at a better understanding of the physiological conditions of patients during such interventions. To achieve this, we will develop parameter identification techniques for differential-equation-based physiological models as well as machine learning approaches, both of which can build on a unique data set of vital measurements available at the University Hospital Graz.

Applicants are expected to have a Master's degree in Mathematics, Computer Science or a related field, solid knowledge in applied mathematics and good programming knowledge, ideally in Python. The position comes with the possibility to work on a relevant dissertation and the classification of this position according to the University Collective Agreement is B1. More details can be found at https://urldefense.com/v3/ https://jobs.uni-graz.at/en/MB/203/99/6149 ;!!HXCxUKc! meWqJyXMFeTtiThotMx-rZBMrJsFxa86lj1t8S9NSKqoL1gYZqbl8fu2nxC8AHHP1rb2z9o\$ Application Deadline: August 19th 2020. Submitted by: Martin Holler Institute for Mathematics and Scientific Computing University of Graz Heinrichstraße 36 A-8010 Graz Tel.:+43 316 380 5156 Mail: martin.holler@uni-graz.at Web: https://urldefense.com/v3/__http://imsc.uni-graz.at/hollerm__;!!HXCxUKc! meWqJyXMFeTtiThotMx-rZBMrJsFxa86lj1t8S9NSKqoL1gYZqb18fu2nxC8AHHPF1kLU-c\$ From: Joachim Weickert weickert@mia.uni-saarland.de [via NADIGEST] Date: August 07, 2020 Subject: Professor Position, Mathematical Data Analysis, Univ Saarbrucken The Faculty of Mathematics and Computer Science at Saarland University (Saarbrucken, Germany) is inviting applications for the following position (tenured full professorship, German salary scale W3) commencing at the earliest opportunity: Professorship (W3) for Mathematics and Computer Science with a Focus on Mathematical Data Analysis (reference number W1731) The successful candidate will have exceptional research and teaching skills, international visibility, and a research direction in mathematical data analysis, with a preferred focus on the mathematical foundations of deep learning. Expertise in at least one of the following areas should be demonstrated: continuous optimization, applied harmonic analysis, compressed sensing, modelling and numerical methods for differential equations, inverse problems, control theory,

and information geometry. Additional connections to analytic areas such as convex analysis, differential geometry or Lie groups are welcome. We expect a willingness to collaborate with other groups of the Faculty of Mathematics and Computer Science as well as interest in interdisciplinary co-operations, including within larger collaborative projects.

Online application deadline: August 16, 2020.

More information: https://urldefense.com/v3/__https://www.mia.uni-saarland.de/mda.pdf__;!!HXCxUKc! l4xKtamDC-GDoxu8gLLHWKstC3Ld90LZ7eGLGm4LDz2ipDUmSv7EmpnIiOCJhPL9\$

From: Martin Holler <martin.holler@uni-graz.at> Subject: Job announcement: PostDoc Position Date: August 14, 2020 at 2:11:38 PM PDT

Dear Colleagues,

I would like to draw your attention to the following job announcement for a PostDoc position.

Best regards, Martin Holler

PostDoc Position (m/f/d) (fixed term contract for 1.5 Years) on "Machine learning for automatic disaggregation of smart meter data"

The position is part of a collaborative research project together with the Austrian Start-up company Solgenium (https://urldefense.com/v3/__http://www.solgenium.com__;!!HXCxUKc!iUQW-QCF9BytudQrrSXFYzgcNPsUMAYr0m6jEwt7Qx0ZIaxMVRHykscvtYjmrasBpm9u0cI\$). The project goal is to develop and realize novel AI-based techniques for an automatic recognition of healthcare indicators from smart meter data. To achieve this, the project brings together a large group of experts from different fields, such as data scientists, mathematicians, statisticians, healthcare professionals and business experts.

The announced position will be embedded in the mathematics research group located the Institute of Mathematics and Scientific Computing at the University of Graz, Austria. The project-goal of this group is to develop and analyze unsupervised and semi-supervised machine learning techniques based on convolutional sparse coding and variational autoencoders for an automatic disaggregation of smart meter data.

Your duties:

- Research in applied mathematic and computer science, with a focus on machine learning techniques such as variational autoencoders and convolutional sparse coding

- Analysis and application of such techniques in view of deriving health-care indicators from smart meter data

- Collaboration with data scientists and health-care experts from Solgenium.

Your profile:

- PhD in Applied Mathematics, Computer Science or a related field

- Solid knowledge in applied mathematics
- Good programming knowledge, ideally in Python

- Experience with one or more of the following topics (desired): Mathematical Signal- or Image Processing, Convolutional Sparse Coding, Convolutional Neural Networks, Variational Autoencoders

- Ability to work in an interdisciplinary environment

- Capacity for teamwork, organizational talent and ability to communicate

- Strong motivation to carry out cutting-edge research at the interface of applied mathematics and data science

Your benefits:

- Involvement in an exciting, interdisciplinary research project

- Direct collaboration with a rising, Austrian start-up company with office locations in Graz, Vienna and Linz

- Qualification as researcher in mathematics and computer science, with focus on machine learning techniques

The minimum salary for this position acording to the Austrian collective agreement is €54453 per Year.

Starting Date: October 2020

If you are interested in this position, please mail your application files (Motivation, CV) until August 30, 2020, to

Martin Holler Institute for Mathematics and Scientific Computing University of Graz Heinrichstraße 36 A-8010 Graz Tel.:+43 316 380 5156 Mail: martin.holler@uni-graz.at Web: https://urldefense.com/v3/__http://imsc.uni-graz.at/hollerm__;!!HXCxUKc!iUQW-QCF9BytudQrrSXFYzgcNPsUMAYr0m6jEwt7Qx0ZIaxMVRHykscvtYjmrasBj6Py0Xg\$

From: alerts@tandfonline.com <alerts@tandfonline.com> Date: Thursday, August 13, 2020 at 3:12 AM Subject: Inverse Problems in Science and Engineering, Volume 28, Issue 9, September 2020 is now available online on Taylor & Francis Online

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