Amy Peerlinck

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RELEVANT PROFESSIONAL EXPERIENCE

Teaching Assistant (Montana State University)
CSCI 132 Basic Data Structures and Algorithms   *Fall 2018*

The course looks at simple data structures and search and sorting algorithms using Java. My position entails grading and teaching two 2 hour lab sections. I have 50 students total across the two sections.

Research Assistant (Montana State University)
Hyperspectral Image Processing   *Spring/Summer 2018*

This is a project in cooperation with the Electrical Engineering department at MSU. The goal is to determine whether produce is fresh based on hyperspectral images (meaning the images have approximately 300 wavelengths in this specific case), using different classifiers and regression techniques. I wrote a convolutional neural network to process the images using different wavelengths than RGB, and using more than three channels.

Patent Classification   *Summer/Fall 2017*

The United States Patent and Trademark Office (USPTO) process a high number of patents on a daily basis, the U.S. Department of Defense (DoD) holds a large part of those patents, but due to the wide spread of the DoD, it is unknown which of these patents belong to the DoD. The goal of this project was to classify all patents coming in through the USPTO as belonging to the DoD or not. To successfully classify the patents, the text information had to be transformed into numerical vectors, which are then sent through classification learners. I implemented Bag of Words, TF-IDF, Latent Semantic Indexing and Doc2Vec for transforming the text. For classification, the k-Nearest Neighbour, Logistic Regression and Multilayer Perceptron algorithms were implemented.

On-Farm Precision Experiment (Precision Agriculture)   *Spring 2017-current*

Precision agriculture is a subfield of agriculture which looks at how technology can improve agricultural techniques. The overarching goal of this specific project is to optimize the economic gain for farmers while minimizing the environmental impact. The CS department's part in this project is to perform more advanced winter wheat yield and protein prediction based on data obtained from farmers who fertilized their fields using randomly stratified fertilizer prescriptions. These prescriptions are created using software written by our CS team in cooperation with the agriculture department. The creation of the prescriptions is based on previous years' yield and protein data, also obtained from the farmers. My part included writing a Genetic Algorithm to minimize rate jumps between different plots on a field, and thus minimize the strain on the farmers' equipment. The second part of my tasks is the

yield and protein prediction, for which I used a Multilayer Perceptron and Stacked Auto-Encoder and compared them to Linear Regression as well as Non-Linear Regression (a hyperbolic model). Furthermore, simple spatial-analysis was performed on the data using the inherent grid structure of the fields and their plots to perform Moore neighbourhood analysis. Both the spatial and non-spatial data was used in all models. Currently, I am working on writing different AdaBoost implementations for regression using Neural Networks to improve predictions further.

Internship at Think Deeply
Start-up company in Bozeman   *April-June 2016*

During my internship at Think Deeply, I came into contact with several technologies (Scala Play, PostGreSQL, AWS, Jquery) while also learning about product management and the general workings of a start-up company. This internship brought me into contact with Deep Learning, which sparked my interest to pursue a PhD in computer science.

OTHER PROFESSIONAL EXPERIENCE

ING Belgium
Infrastructure & Technology Department   *Summer 2015*

I worked at ING in the summer of 2015 They used me as an assistant on several different projects and gave me the lead on a small project concerning digitalization and updating of out-of-date files. Following is a list of the most important projects I helped with:
- Digitalizing 'Move Files' and updating Agile planning, both using Sharepoint technology
- Writing short and comprehensible manuals on Confluence & JIRA
- Organizing SCRUM boards

Attending meetings to help plan work and demonstrate solutions

Napoleon Games *Customer service*   *Summer 2015*

Law firm Van Cauter *Clerical assistant*   *Summer 2014*

EDUCATION

PhD candidate in Computer Science   *2017 – 2021 (expected)*
Montana State University

Bachelor in Information Science   *2013 – 2016*
Graduated cum laude
Karel de Grote College/University

Bachelor of Arts in Applied Linguistics   *2010 –* 2013
English – Mandarin Chinese
Graduated cum laude
University of Antwerp

Summer course Mandarin Chinese *July 2013*
Global Exchange Center Beijing

ERRATA

- **Publications:**
  - A. Peerlinck, J. Sheppard and B. Maxwell. "Using Deep Learning in Yield and Protein Prediction of Winter Wheat Based on Fertilization Prescriptions in Precision Agriculture," Proceedings of the International Conference on Precision Agriculture, May 2018.
- **Papers in progress:**
  - AdaBoost for Regression for Improved Yield and Protein Prediction in Precision Agriculture.
  - Applying a Genetic Algorithm to Minimize Rate Jumps for Fertilizer Application in Precision Agriculture.
- President of Graduate Women in CS at MSU:
  - Organize and lead social, academic, and networking events with the goal of supporting graduate women in our CS department.
- Search Committee Member for MSU CS faculty search (student representative):
  - Review faculty candidate application materials, perform phone interviews, meet with faculty candidates, and provide feedback to the search committee.

TECHNICAL SKILLS

- **Database:** Oracle, PL/SQL, MySQL, Pentaho (more specifically Spoon), MongoDB, PostGreSQL
- **Programming languages:** Java (including Play and Spring frameworks), C++, C#, Visual Basic .NET, Python, Scala
- **Infrastructure:** AWS, Jenkins
- **Web design:** Javascript, Jquery, CSS 3, HTML 5.0, XML (and XAML), XSL, Responsive Web Design, AngularJS & Angular 2
- **ERP:** Navision
- **Statistical analysis:** R, SPSS
- **Big Data analysis:** Hadoop, Apache Spark
- **Mobile:** Android development (Jellybean 4.1 and up)

OTHER RELEVANT SKILLS

- **Languages:** Dutch (native), English (second language), French (intermediate), Mandarin (basic), Spanish & German (both beginner)
- **Online collaboration platforms:** Sharepoint, JIRA, Confluence, Slack, Overleaf (latex)
- **Design:** Adobe Photoshop