Uladzimir Kasacheuski

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Education

Indiana University-Purdue University Indianapolis, GPA 3.83 — May 2018

B.S., **Physics**
B.S., **Computer Science**
Minor, Mathematics

Publications

Sego, T. J., **Kasacheuski, U**., Hauersperger, D., Tovar, A., & Moldovan, N. I. A heuristic computational model of basic cellular processes and oxygenation during spheroid-dependent biofabrication. *Biofabrication, (2017), 9(2), 024104.*

Research

Undergraduate Research Assistant, IUPUI — Aug 2017 - Present

Advisor : Dr. Murat Dundar
Topic: Feature Learning (FL) in Automated Essay Scoring

- The most successful FL approach found in literature for predicting essay score from essay text (a neural network model including convolution and recurrent layers) is implemented with Keras.
- The amount information captured by the FL model of the information available in high quality hand-crafted features is explored; latent information not captured by the FL model may be analyzed in order to further improve the original model.
- A transfer learning opportunity leveraging pretrained word-embeddings is explored in an attempt to increase performance and increase training speed.

Undergraduate REU Researcher, IUPUI — May 2017 - Aug 2017

Advisor: Dr. Mohammed Hasan
Topic: Multi-Aspect Sentiment Analysis of Online Reviews

- Built a resilient web scraper to retrieve online hotel reviews at scale from websites such as Trivago.com and TripAdvisor.com
- Utilized features extracted by team for supervised training of regression algorithms.
- Created custom word vectors utilizing TF-IDF and truncated SVD (LSA) to demonstrate the performance improvement enabled by word2vec.

Independent Study, IUPUI Jan 2017 - May 2017

Advisor : Dr. Murat Dundar

Topic: Semi-Supervised Labeling and Classification of Words by Semantic Subject

Link: https://github.com/uladkasach/Word-Subject-Classification

- Explored the performance of pretrained word-embeddings vs. word-embeddings trained on a custom dataset, utilizing Tensorflow to implement word2vec.
- Evaluated the performance of several classifiers including a neural network classifier, built with Tensorflow, and SVM, RF, and KNN classifiers from sklearn.
- Built a training-testing pipeline, with scheduling functionality, utilized for conducting gridsearch over sampling techniques (critical due to imbalanced dataset), classifiers, and hyperparameters.

Undergraduate MURI Researcher, IUPUI Aug 2016 - May 2017

Advisors : Dr. Nicanor Moldovan, Dr. Andres Tovar

Topic: Modeling and Validation of Basic Cellular Metabolism in Spheroids Used for Scaffold-Free 3D Bioprinting

- Supported a graduate student in implementing the mathematical theory enabling simulation of cellular development and metabolism in Matlab.
- Ensured the simulation model was developed with standardized software development practices for maintainable, reusable, and scalable code.
- Collaboratively optimized time performance of Cellular-Potts model, environmental diffusion, and stochastic cellular response algorithms while maintaining result integrity.

Undergraduate MURI Researcher, IUPUI May 2016 - Aug 2016

Advisor : Dr. Andres Tovar

Topic: Filament Fused Fabrication of 3D Printed Components Made of Recycled Plastics

- Efficiently produced literature review research deliverables clarifying current "state of art" and standards in addition to thoroughly researching mechanical characterization, 3D printing replication parameters, and more.
- Conducted tensile tests, filament extrusion, and 3D printing for material mechanical characterization.

Presentations

Featured Speaker, Data Science Indy Jun 2017

1.5 hour presentation on the basics of word embeddings and potential applications for the Data Science Indy group in Indianapolis, Indiana.

Poster Presentation, IUPUI Research Day Apr 2017

Poster Presentation, IUURC 22 Dec 2016

Poster Presentation, IUPUI Nanotechnology Research Symposium Nov 2016

Poster Presentation, IUPUI Research Day Jul 2016

Professional Experience

Software Engineer, Global Health Informatics, Regenstrief Institute Feb 2017 - Present

The Global Health Informatics team at Regenstrief Institute supports researchers and federal agencies adopting and developing new technology to optimize and improve healthcare through technology around the world.

- Maintained, updated, and developed open source software for secure data exchange across aggregate health information systems
  - e.g., https://github.com/uladkasach/openhim-cert-updater
- Collaborated with global teams, working with developers from Eastern Europe to South Africa.
- Led team meetings for and the development of the Personal Cancer Toolkit project, an online patient portal for cancer patients, funded by IU Health researchers.
  - https://github.com/personalcancertoolkit

Software Engineer, Self Employed Oct 2013 - Present

Many web development projects have been completed by contract or out of entrepreneurial motives from the ground up. Each project includes full stack software solutions utilizing tools such as NodeJS, PHP, MySQL, MongoDB, Apache, Nginx, and more. Project management and software engineering skills have continuously been advanced for the completion of on time, maintainable, and scalable projects.

- Examples: ShrewdShipper.com (Under Construction), CarlosOboe.com, ToughSTEM.com, BeachTimeAuctions.com, and more.