Enes Kemal Ergin

Contact Information

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Research Interests

Computational analysis of genomic and epigenomic datasets, cancer genomics, machine learning applications (deep learning in particular) for biomedical research

Education

North American University (NAU), Houston, Texas USA

B.S., Computer Science, 2013 - 2017

Research Experience

Visiting Researcher

Harvard Medical School **November, 2015 - September, 2016**

- Research: Predicting the determinants of alternative mRNA splicing
  - Aim; **To determine how histone modifications influence the alternative splicing.**
  - Developed a **deep convolutional neural network** to predict mRNA expression patterns from 11 different histone modification datasets (pilot in HeLa cells).
- Research: Predicting transcription factor binding sites across cell types
  - Aim; **To develop a general framework to predict transcription factor (TF) binding sites accross various cell types.**
  - Developed a machine learning-based algorithm can utilize large datasets (approximately 900GB) for estimating TF binding sites.

Undergraduate Research Assistant

North American University **September, 2015 - present**
Peer assistant in Bioinformatics Lab at NAU. Mentored 4 junior and sophomore students.
Designed an open source bioinformatics curriculum with Open Source Society in GitHub.

Yeditepe University **August, 2014 - May, 2015**
Worked as a genomic data scientist to utilized virtual docking software to determine the best possible inhibitor for specific molecule by mainly using NCBI PubMed database.

Texas Institute of Education and Research (TIBER) **September, 2014 - April, 2015**
Wet-lab experience: Worked on drug development and testing process. Was responsible for preparing agar solutions, bacteria cultures, and liquid/solid drug tests on those bacteria cultures.

Teaching Experience

North American University, Stafford, TX USA

Teaching Assistant **September 2015 - Present**
Co-taught 3 undergraduate level courses for computer science department. Prepared the lab and extra sessions on Git/GitHub, Rapid Python Programming, and Ipython/Jupyter. Shared responsibilities for preparing lectures, exams, homework assignments, and grading.

- COMP 3317 Algorithms, Fall 2015, 2016.
- COMP 3320 Programming Languates, Fall 2016.
- COMP 3322 Software Engineering, Fall 2016.

Instructor **February - April 2015**
Taught Basic Python programming course to 35 people including students, faculty, and staff of NAU, which was a first ever course taught solely by a student in NAU. (Link)

Publications

Kocabas, F., **Ergin, E.K**. (2016). Identification of small molecule binding pocket for inhibition of Crimean-Congo hemorrhagic fever virus OTU protease. *Turkish Journal of Biology*, 40:239-249.

Projects

Open Source Bioinformatics Curriculum **June 2016**
4 years worth, open source source bioinformatics curriculum developed by my lab and contributed by open source society and other contributers around the world. (Link)

Scholar Development Center **February 2016**
Created a non-profit community based organization under the Raindrop Foundation to help Turkish undergraduate students around Texas to achieve their dreams in academia or industry.

Bioinformatics Repository **November 2014**
Put together a repository which contains algorithms for Bioinformatics problems. (Link)

Essential Algorithms **September 2014**
Put together a repository which contains algorithms from A Practical Approach to Computer Algorithms by Rod Stephens, Number Theory, and other useful algorithms written in Python. (Link)

Honors and Awards

North American University: Exceptional Merit Scholarship, 2012-2017

North American University: Graduated Magna Cum Laude, Honors in Computer Science, 2017

North American University: President's Honor Roll , 2015-2017

North American University: Outstanding Student of the Year, 2015

Extracurricular Activities

- NAU Kazakh Student Association, *Club Advisor* **September 2016 - Present**
- ISCB (International society of computational biology), *Member* **August, 2016 - Present**
- NAU Future Leaders Club, *Founder and Director* **April, 2015 - Present**
- Student Government, *VP of Unity and Social Justice* **September 2014 - Present**
- ACM (Association for Computing Machinery), *Member* **February 2013 - Present**
- NAU ACM, *Member* **September 2013 - Present**
- NAU ACM, *Vice President* **September 2015 - May 2016**
- NAU ACM, *Secretary* **February 2013 - September 2014**

Technical Skills

- **Languages:** Python(Pandas, Numpy, H5py, Tensorflow, Biopython, Scikit-learn), R(ggplot2, dplyr), Java, LaTeX, C/C++, Shell/Bash Scripting, Javascript, HTML, CSS
- **Database Systems:** SQL, MySQL, MongoDB
- **Operating Systems:** Unix/Linux, MacOS, Windows.

References

- Assistant Prof. Dr. Stirling L. Churchman, Genetics Department, Harvard Medical School, Boston, MA, USA, churchman@genetics.med.harvard.edu
- Associate Prof. Dr. Kemal Aydin, Computer Science Department, North American University, Houston, TX, USA, kemal@na.edu
- Prof. Dr. Cengiz Zubeyir Altuntas, Director of Texas Institute of Biotechnology Education and Research, North American University, Houston, TX, USA cza@na.edu