Frames White

Curriculum Vitae

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Recent Employment

Since the completion of my PhD in Oct 2018, I have been on the Research Software Engineering Team at Invenia Labs. Invenia Labs applies machine learning for forecasting and and optimization for decision making to improve performance of the US electricity grids, interacting with the dayahead-realtime markets. This problem has many open research problems, and Invenia has many researchers working on them. The Research Software Engineering Team was created to help researchers do research better, and to help close the gap between research and production. I was one of three founding members of that team and helps set it up to be a powerful force multiplier for the research division. As a research software engineer, I helped design better systems that allowed researchers to modularly improve parts of our system and swap them out. I also worked on software that was too scientific for most developers, but too technical for most researchers such as automatic differentitation and machine learning frameworks.
As the team grew, it eventually required a lead to take on a more managemental role. This was a hybrid technical role, where I decreased amount of time on software development and spent more on supporting my team. I conducted regular one-on-ones, assisted team members with developing profesional development plans, lead onboarding programs, and created a career ladder system to be rolled out company wide.
From July 2022 onwards, I also took on the role of acting program manager. Assisting the CSO with coordinating the company-wide program of work, and leading our product and project managers. This concluded with a large restructure of how the company works to allow us to be much more efficient and to facilitate the professional growth of employees.

Employment History

July 2021 – Present	**Research Software Engineering Group Lead**, *Invenia Labs*, Cambridge, UK
2018 Oct – July 2021	**Research Software Engineer**, *Invenia Labs*, Cambridge, UK
2014 Nov – 2018 Oct	**Research and Teaching Assistant**, *The University of Western Australia*, Perth, WA, (Casual)
2011 July – 2012 March	**Agile Platforms Developer**, *Bankwest*, Perth, WA, Australian Computing Society Workplace Integrated Learning Scholarship

Education

2015 March– 2018 Oct	**PhD Candidature**, *The University of Western Australia* Thesis: "On the surprising capacity of linear combinations of embeddings for natural language processing". (Machine learning for natural language processing)
2009–2014	**Bachelor of Engineering, with Honours**, *The University of Western Australia* (Majoring in Electrical and Electronic Engineering)
2009–2014	**Bachelor of Computer and Mathematical Sciences**, *The University of Western Australia* (Double major in Pure Mathematics, and Computation)

Organisations

2016 April – 2019 April **Administrator of the Board**, *Western Australian Science Fiction Foundation*

2015 March – ∞ **Honarary Life Member**, *Unigames*, (UWA Student Society)

Open Source

In 2022, I received the **Julia Community Award**, for my technical and social contributions to the JuliaLang ecosystem. I am the a major contributor to too many projects to list here. A complete list is available at `https://github.com/oxinabox`. The more notable include: being the comaintainer of *TensorFlow.jl* (now deprecated), being the maintainer of *DataStructures.jl*, being the creator and maintainer of *LoggingExtras.jl* and being the leader of the *ChainRules.jl* project. The last of which is a moderately sized collaboration with folk from several different institutions to produce fundamental automatic differentiation tooling. It has well-over 100 directly dependent packages and over 2500 indirectly dependent packages. You can find various talks on this, and my other open source projects on YouTube, by searching for "Frames White JuliaCon" and "Frames White EuroAD".

Publications

Note: I used **Lyndon White** as a pen-name up until February 2022. It thus appears as such in this section. I no longer use that name anywhere else.

[1] Lyndon White, Lyndon While, Ben Deeks, and Farid Boussaid. Transistor sizing using particle swarm optimisation. In *IEEE Symposium Series on Computational Intelligence*, pages 259–266, Dec 2015.

[2] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. How well sentence embeddings capture meaning. In *Proceedings of the 20th Australasian Document Computing Symposium*, ADCS '15, pages 9:1–9:8. ACM, 2015.

[3] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. Generating bags of words from the sums of their word embeddings. In *17th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing)*, 2016. Best Student Paper Award.

[4] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. Modelling sentence generation from sum of word embedding vectors as a mixed integer programming problem. In *IEEE International Conference on Data Mining: High Dimensional Data Mining Workshop (ICDM: HDM)*, 2016.

[5] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. Finding word sense embeddings of known meaning. *19th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing)*, 2018.

[6] Naeha Sharif, Lyndon White, , Mohammed Bennamoun, and Syed Afaq Ali Shah. Learning-based composite metrics for improved caption evaluation. In *Proceedings of the ACL Student Research Workshop*. Association for Computational Linguistics, 2018.

[7] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. Novelperspective: Identifying point of view characters. In *Proceedings of ACL 2018, System Demonstrations*. Association for Computational Linguistics, 2018.

[8] Lyndon White, Roberto Togneri, Wei Liu, and Mohammed Bennamoun. *Neural Representations of Natural Language*. Studies in Computational Intelligence (Book). Springer Singapore, 2018.

[9] Naeha Sharif, Lyndon White, Mohammed Bennamoun, and Syed Afaq Ali Shah. Nneval: Neural network based evaluation metric. In *Proceedings of the 15th European Conference on Computer Vision*. Springer Lecture Notes in Computer Science, 2018.

[10] Jonathan Malmaud and Lyndon White. Tensorflow. jl: An idiomatic julia front end for tensorflow. *Journal of Open Source Software*, 3(31):1002, 2018.

[11] Lyndon White. *On the surprising capacity of linear combinations of embeddings for natural language processing*. PhD thesis, The University of Western Australia, 2019.

[12] Naeha Sharif, Lyndon White, Mohammed Bennamoun, Wei Liu, and Syed Afaq Ali Shah. Lceval: Learned composite metric for caption evaluation. *International Journal of Computer Vision*, 127(10):1586–1610, October 2019.

[13] Mahdi Jamei, Letif Mones, Alex Robson, Lyndon White, James Requeima, and Cozmin Ududec. Meta-optimization of optimal power flow. In *ICML Workshop, Climate Change: How Can AI Help*, 2019.

[14] Ayush Kaushal, Lyndon White, Mike Innes, and Rohit Kumar. Wordtokenizers.jl: Basic tools for tokenizing natural language in julia. *Journal of Open Source Software*, 5(46):1956, 2020.

[15] Naeha Sharif, Lyndon White, Mohammed Bennamoun, Wei Liu, and Syed Afaq Ali Shah. Wembsim: A simple yet effective metric for image captioning. In *Digital Image Computing: Techniques and Applications, 2020 (DICTA 2020)*, United States, November 2020. IEEE, Institute of Electrical and Electronics Engineers. DSTG Best Contribution to Science Award.

[16] Frank Schäfer, Mohamed Tarek, Lyndon White, and Chris Rackauckas. Abstractdifferentiation.jl: Backend-agnostic differentiable programming in julia. In *NeurIPS Differentiable Programming Workshop*, 2021. Best Poster Award.