

William (Bill) Coleman, Data Scientist

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BACKGROUND:

LI: <https://www.linkedin.com/in/colemanwilliam/>

Currently a Machine Learning (ML) intern and Data Scientist with Bell Labs. Building a Minimum Viable Product (MVP) analysing voice signals using Convolutional Neural Nets (CNNs) and Natural Language Processing (NLP) to predict emotion.

7+ years software development, 4 years data driven analysis. PhD research using ML to categorise sounds by importance for audio content optimisation (Viva pending). Deep experience in real-world problem collaboration with multi-disciplinary teams in business, creative arts and academic contexts. Startup co-founder & CTO.

TECHNICAL SKILLS:

GIT: <https://github.com/coleman-wma>

Core competency in computer vision and audio ML. Have also worked on NLP.

- **Theoretical:** Convolutional Neural Networks, Support Vector Machines, Random Forest, Active Learning, NLP, Cross Validation, Statistical Testing.
- **Programming:** Python, R, Matlab. **Frameworks:** Keras, TensorFlow, pandas, scikit-learn, NumPy, SciPy, matplotlib, SPSS. **Development:** Agile, GitHub.
- **Other:** Web development in JavaScript, PHP, SQL, HTML, Flask. Audiovisual production. Deep presentation experience in business & academic contexts.

EXPERIENCE:

Machine Learning, Bell Labs

Jan 2020 – Present

- **Project:** MVP development for voice biometrics. Data science, multi-disciplinary industrial team collaboration, product development roadmap.
- Capture and transcription of voice using Google API. Sentiment prediction on text output (NLP) and using visual features of voice audio (CNNs).

Data Scientist, Dublin.AI Fellowship

Jan – May 2020

- **Personal Project:** Sentiment prediction using text and audio inputs. Web app to capture voice data and deploy NLP & CNN models in Flask.
- **Group Project:** ML customer churn prediction, agile development process.

PhD Research, TU Dublin w/ Xperi (Industrial Partner)

Dec 2015 – Jan 2020

- Awarded an Irish Research Council scholarship to investigate optimisation of audio content delivery strategies. Academic and business research project management and product development using ML, Deep Learning, statistics & inference, software development & research methods. Teaching assistant.

CTO (Co-founder) SiteSpy, IoT Startup

Jan 2015 – Feb 2017

- Electronic prototyping (arduino), MVP, business development, pitching, product market fit, secured angel and Enterprise Ireland High Potential Start Up funding, operations & product management, client acquisition.

Creative Arts Practitioner

Sep 1998 – Present

- Project management, musician, audiovisual production services for artistic and corporate clients, creative applications of technology.

Planning & Buying Manager, PML/Posterscope

Sep 1998 – Sep 2008

- Led a small team in an advertising company with billings of ~€20m pa. 10 years, team & project management, P&L responsibility, operations, new business pitching, client service, design of finance & operations systems.

HOBBIES/INTERESTS:

Fascinated by problem solving both in technological and creative contexts, I'm also a keen musician, sub 4-hour marathon runner & proud guardian of two rescue hounds. Constantly curious about how things work and ways to improve them.

EDUCATION:

- **TU Dublin, PhD in Audio Machine Learning** Dec 2015 – Jan 2020
Machine Learning, Deep Learning, statistics & inference, research methods, software development, academic project management, industry collaboration.
- **TCD, Masters in Music and Media Technology** Sep 2013 – May 2015
Auditory Scene Analysis, audio production, software development for creative applications, visual music, perception of sound, end-of-year exhibition project manager, class representative.
- **DCU, BA in Communications Studies** Sep 1995 – May 1998
Radio & video production, psychology, linguistics, media studies, marketing, public relations, broadcasting, communications theory.

PUBLICATIONS/CONFERENCES:

- Coleman, W., Delany, S. J., Yan, M., & Cullen, C. (2020). **A Machine Learning Approach to Hierarchical Categorisation of Auditory Objects.** *Journal of the Audio Engineering Society.* 68(1/2), 48–56.
- Coleman, W., Delany, S. J., Cullen, C & Yan, M. (2020) **Active Learning for Auditory Hierarchy.** *International Cross Domain Conference for Machine Learning & Knowledge Extraction (CD-MAKE 2020)*, Dublin, Ireland; 25th-28th August, 2020.
- Coleman, W., Cullen, C., & Yan, M. (2018). **Categorisation of Isolated Sounds on a Background - Neutral - Foreground Scale.** *144th Convention of the Audio Engineering Society*, Milan, Italy; May 23rd – 26th, 2018.
- Coleman, W., Adams, L., Cullen, C., & Yan, M. (2017). **Perception of Auditory Objects in Complex Scenes: Factors and Applications.** *Institute of Acoustics – 21st Century Developments in Musical Sound Production, Presentation and Reproduction*, Nottingham, UK; November 21st, 2017.
- Coleman, W., O’Sullivan, L., Cullen, C., & Yan, M. (2017). **sonicPainter: Modifications to the Computer Music Sequencer Inspired by Legacy Composition Systems and Visual Art.** *International Festival and Conference on Sound in the Arts. Science and Technology*, Dundalk, Ireland; 8th – 9th September, 2017.
- Coleman, W., O’Sullivan, L., Cullen, C., & Yan, M. (2017). **iPhone FM Tilter: A Frequency Modulation Instrument for Improvisational Performance using iPhone and Arduino.** *International Festival and Conference on Sound in the Arts. Science and Technology*, Dundalk, Ireland; 8th – 9th September, 2017.
- Cullen, C., & Coleman, W. (2016). **Human Pattern Recognition in Data Sonification.** *6th International Workshop on Folk Music Analysis*, Dublin, Ireland; 15th – 17th June, 2016.

REFERENCES:

On Request