Bereket Abera YILMA

COMPUTER SCIENCE

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Experience

University of Luxembourg
Esch/Alzette, LUXEMBOURG

POSTDOCTORAL RESEARCHER: **BRAIN COMPUTER INTERFACES (BCI)**
Feb 2022 - Present

- Conduct research in BCI, Personalization, Recommneder Systems and Adaptive User Interfaces.

Luxembourg Institute of Science and Technology (LIST)
Esch/Alzette, LUXEMBOURG

RESEARCH SCIENTIST: HUMAN-CENTRED AI focusing on **PERSONALIZATION** IN SMART INTERACTIVE ENVIRONMENTS:
Apr 2018 - Feb 2022

- Develop data-driven solutions for personalized services in smart interactive environments (Cyber-Physical-Social Systems (CPSS)).
- Designed and implemented personalized recommendation and guidance algorithms for the the **National Gallery, London** as an extension of **CROSSCULT**, the European Union's **Horizon 2020** research and innovation programme.
- Conduct research on **Machine learning and Optimization** for personalised applications
- Supervised **Master's thesis** on Deep Learning based Visual Art Recommender System.
- Conduct literature reviews, design and implement algorithms, publish findings in Journals and Conferences, deliver talks and presentations.

Research Center for Automatic Control (CRAN)
Nancy, France

VISITING RESEARCHER:
July 2021 - Feb 2022

- Lead research on **Deep Reinforcement Learning** for Personalized adaptation in Collaborative robotics (**Cobotics**).
- Co-supervise three **Master's thesis** projects in the intersection of **Personalization** and **Cobotics.**

Fondazione Bruno Kessler (FBK)
Trento, ITALY

DATA SCIENTIST | RESEARCH ASSISTANT:
July 2017 - Mar 2018

- Worked on **NLP**, Data augmentation and training sequence models (using **Deep learning**) on Doctor-Patient conversational data for the **CoachAI** platform, a Health assisting **conversational Agent**.
- Designed and implemented a patient profiling and physical activity recommendation algorithms based on sensory data for **CoachAI.**
- Contributed in writing scientific publications.
- Developed food recognition and leftover estimation algorithms for daily diet monitoring by resorting **Computer vision and NLP**.

University of Trento
Trento, ITALY

MACHINE LEARNING ENGINEER | RESEARCH ASSISTANT:
Sep 2016 - July 2017

- Worked on **Constructive Machine Learning** research for **Preference elicitation and preference learning.**
- Conduct literature reviews, collaborate with PhD students and postdocs in designing, implementing and evaluating several machine learning experiments.
- Developed a **Constructive Preference Elicitation algorithm** for a **Social Choice** tasks with Setwise Max-Margin Learning.

Education

University of Lorraine
Nancy, France

PH.D. IN AUTOMATIC, SIGNAL AND IMAGE PROCESSING, COMPUTER ENGINEERING
May 2018 - July 2021

University of Trento
Trento, ITALY

M.S. IN COMPUTER SCIENCE

SPECIALIZATION IN **Artificial Intelligence**: MACHINE LEARNING | BIG DATA AND SOCIAL NETWORKS ANALYSIS | DATA MINING
Sep 2015 - Dec 2017

University of Gondar
Gondar, ETHIOPIA

B.S. IN COMPUTER AND INFORMATION SCIENCE
Sep 2015 - Dec 2017

Technical Skills

LANGUAGES/TECHNOLOGIES:

- Python | Java | JavaScript | C++ | R **|** Tensorflow | PyTorch | Keras | Apache Spark/Hadoop | SPaCy | Plotly | ggplot | Dash | seaborn | matplotlib **|** GUROBI | PuLP **|** MySQL | Amazon DynamoDB | MongoDB | Neo4j | Amazon Neptune | Amazon SageMaker | IBM Watson | Google GCP

Selected Projects

MSARG : A MULTISTAKEHOLDER AWARE RECOMMENDATION SYSTEM

- **https://github.com/Bekyilma/Multi-Stakeholder-Recommendation**

ITEM2VEC : DISTRIBUTED REPRESENTATION BASED RECOMMENDER SYSTEM FOR E-MARKETS

- **https://github.com/Bekyilma/Recommendation-based-on-sequence**

VAR : Personalized Visual Art Recommender System

- **https://github.com/Bekyilma/Personalized-Visual-Art-Recommendation**

Professional Activities

Reviewing:

- Computing Journal
- Future Generation Computer Systems
- Springer Nature Computer Science Journal
- The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR'22)
- The 1st International Conference on Hybrid Human Artificial Intelligence (HHAI'22)
- The 20th Conference of International Graphonomics Society (IGS-2021)
- 3rd, 4th and 5th Black in AI Workshops at Neural Information Processing Systems (NeurIPS 2019, 2020, 2021).

PC Member

- 1st International workshop on Business Informatics in Practice (BIiP2020)
- The 20th Conference of International Graphonomics Society (IGS-2021)
- The 1st International Conference on Hybrid Human Artificial Intelligence (HHAI'22)
- 4th Black in AI Workshop at Neural Information Processing Systems NeurIPS2020

Selected Publications

Journal Articles:

- **Bereket Abera Yilma**, Hervé Panetto, and Yannick Naudet."Systemic formalisation of Cyber-Physical-Social System (CPSS): A systematic literature review". In Computers in Industry, Volume 129 :103458, April 2021.
- **Bereket Abera Yilma**, Hervé Panetto, and Yannick Naudet."Personalisation in Cobotics: A CPSS perspective with Deep Reinforcement Learning". In Computers in Industry (Under Review)

International conferences:

- **Bereket Abera Yilma**, Yannick Naudet and Hervé Panetto." Personalisation in Cyber-Physical-Social Systems: A Multi-stakeholder aware Recommendation and Guidance", In the proceedings of the 29th ACM Conference on User Modeling, Adaptation and Personalization (UMAP '21), June 2021, Utrecht, Netherlands.
- Mateusz Dubiel, **Bereket Abera Yilma**, Kayhan Latifzadeh and Luis A Leiva." A Contextual Framework for Adaptive User Interfaces: Modelling the Interaction Environment". In the proceedings of The ACM CHI Conference on Human Factors in Computing Systems at AUI workshop), New Orleans, LA, May 2022.
- **Bereket Abera Yilma**, Yannick Naudet and Hervé Panetto." Towards a Personalisation Framework for Cyber-Physical-Social System (CPSS)". In the proceedings of the the17th IFAC Symposium on Information Control Problems in Manufacturing(INCOM2021), Budapest, Hungary(Virtual), June 2021.
- **Bereket Abera Yilma**, Yannick Naudet and Hervé Panetto."A New Paradigm and Meta-Model for Cyber-Physical-Social Systems," In the proceedings of the 21st IFAC World Congress in Berlin, Germany, July 2020.
- **Bereket Abera Yilma**, Najib Aghanda, M. Romero, Yannick Naudet and Hervé Panetto."Personalised Visual Art Recommendation by Learning Latent Semantic Representations," In the proceedings of the 15th International Workshop on Semantic and Social Media Adaptation and Personalisation (SMAP 2020), Zakynthos, Greece(Virtual)October 2020.
- Yannick Naudet, **Bereket Abera Yilma** and Hervé Panetto."Personalisation in Cyber-Physical and Social Systems: the Case of Recommendations in Cultural HeritageSpaces," In the proceedings of the 13th International Workshop on Semantic and Social Media Adaptation and Personalisation (SMAP 2018)Zaragoza, Spain, September 2018.
- A Fadhil, G Schiavo, Y Wang, **Bereket Abera Yilma** "The effect of emojis when interacting with conversational interface assisted health coaching system," In the proceedings of the 12th EAI International Conference on Pervasive Computing Technologies for Healthcare 2018.

Certifications

* **Deep Learning Specialization** (from Stanford University)

* **Mastering Digital Twins** (from EIT Digital)

* **Machine Learning Foundations: A Case Study Approach** (from University of Washington)

* **Machine Learning: Clustering & Retrieval** (from University of Washington)

* **Specialization Machine learning: Build Intelligent Applications** (from University of Washington)

* **Neural Networks and Deep Learning** (from Stanford University)

* **Efficient Multi-Objective Optimization (Summer School)** (from Cologne University of Applied Sciences)

* **Knowledge-Driven Innovation and Entrepreneurship (Summer School)** (from University of Luxembourg)