

RECRUITMENT PACK



This document includes the following information:

- Job Description
- Person Specification
- Additional information

Making an application:

Please complete the short on-line application form and attach the following 4 documents:

- a) A covering letter setting out how you meet the requirements of the role as set out in the person specification.
- b) A full curriculum vitae (CV) including any publications. You should specify your 4 most significant papers published within the past 5 years (or an equivalent number appropriate to being an early career researcher). Applicants from within the UK should indicate which publications have been submitted to the REF 2014 and any assessment of the rating for each piece of work; For more information about the REF visit www.ref.ac.uk

Shortlisting is undertaken by a panel after the closing date on the basis of information provided and failure to upload the requested documents will result in an application being rejected.

We recommend that you take a copy of this recruitment pack to help with your preparation.

The University of Essex is proud to be part of the Disability Confident scheme and is committed to supporting diversity and equality, representative of our inclusive community. As part of our commitment to this scheme any candidate who has a disability and meets all the essential criteria for the role will be offered an interview. We also work in partnership with national disability organisation **AccessAble** who provide detailed online access guides to many of our campus buildings and facilities which you may find useful.

Please note: We are only accepting on-line applications for this post. However, if you have a disability that makes it difficult for you to provide us with information in this way, please contact the Resourcing Team (01206 876559) for help.

Closing Date: 1 September 2019

Interviews are planned for: TBC

Expected start date: October 2019 or as soon as possible



UNIVERSITY OF ESSEX
JOB DESCRIPTION

Job Title and Grade:	Senior Research Officer (ASR); Grade 8
Contract:	Fixed-Term, Full-Time. This post is fixed-term until 30 June 2023 due to a temporary funding source.
Hours:	A notional minimum of 36 hours per week
Salary:	£33,199 - £35,211 per annum
Department/Section:	School of Computer Science and Electronic Engineering
Reports on a day-to-day to:	Principal Investigator of the project
Responsible to:	Head of Department (HoD)
Purpose of role:	To conduct research, development and dissemination of user's opinion dynamics tracking techniques integrating Machine Learning and Natural Language Processing in the project COURAGE

CONTEXT

The School of Computer Science and Electronic Engineering (CSEE) at the University of Essex is pleased to announce this postdoctoral position in the research project "*COURAGE: A Social Media Companion Safeguarding and Educating Students*". This project is an international collaboration funded by VolkswagenStiftung (Volkswagen Foundation) as part of the *Artificial Intelligence and the Society of the Future* funding initiative. The project partners include the Universitat Pompeu Fabra (Spain), the Istituto per le Tecnologie Didattiche of the National Council of Research ITD-CNR (Italy), Hochschule Ruhr West (Germany) and the Rhine-Ruhr Institute for System Innovation (Germany).

This project brings together a multi-disciplinary consortium to develop novel approaches aimed at addressing some of the major challenges posed by social media to society and to young members of society in particular. The project aims to develop a **Virtual Social Media Companion** that educates and supports teenage school students facing the **threats of social media** such as discrimination and biases as well as **hate speech, bullying, fake news** and other toxic content. The companion will raise awareness of potential threats in social media among students without being intrusive. It will apply **gamification strategies** and **educative information selection algorithms**. The project involves a substantial experimentation aspect in collaboration with multiple schools around Europe. It will thus provide a unique chance to perform **interventions** to test the validity of social interaction theories and governance methods.

The Essex team will drive two strands of this work, the machine-learning-based user modelling aspect and the process of analysing textual data drawing from our expertise in natural language processing (NLP). More specifically, we aim at developing **Bayesian computational models of beliefs dynamics of social media users** to support governance and educational strategies. These models will also be applied to evaluate socially relevant variables, such as trust and inclusion. We will build on and implement state-of-the-art **NLP & AI** methods to provide measurements of sentiment, bias, hatefulness, veracity, polarization, and sensationalism of social media content. In addition, we will drive forward the state of the art in detecting hate speech and biased content. The companion will actively counteract this kind of content, balancing it with opposite perspectives and proposing specifically themed challenges adopting ideas used in games.

Applicants are expected to hold a relevant doctoral level degree or be close to completion) in Machine Learning, Natural Language Processing, Statistics, Physics, Mathematics, Computer Science or a closely related discipline. The ideal candidate will have significant experience in

computational modelling of social media dynamics, state-of-the art natural language processing methods, reinforcement learning and statistical modelling of multidimensional time series. The ideal applicant would also have a strong publication record (relative to their career stage).

The successful applicant will join the Essex COURAGE team — formed by Professor Udo Kruschwitz, (PI), Dr Dimitri Ognibene, (Co-I) and Dr Aline Villavicencio (Co-I).

KEY RESPONSIBILITIES OF THE POST

- To engage in individual and/or collaborative research activity resulting in internationally excellent publications that is in keeping with [Research Excellence Framework](#) (REF) criteria.
- To contribute to applications for external research funding appropriate in scale to career stage and subject area norms where appropriate.
- To enhance the scholarly reputation of the Department and the University by contact with the wider academic community and supporting knowledge exchange activity.
- To undertake leadership duties related to research appropriate to career stage and as allocated by the HoD.
- To contribute expertise and knowledge to departmental and/or institutional initiatives as directed by their Head of Department.

MAIN DUTIES OF THE POST

Research

- To deliver the research objectives defined by the COURAGE grant and research project.
- To undertake or manage practical elements of research such as setting up and conducting experiments, developing questionnaires and conducting fieldwork, recording data and identifying trends or patterns.
- To produce research outputs for publication at acceptable levels of volume and academic excellence and disseminate the result of research and scholarship through appropriate Knowledge Exchange activities (such as at relevant national and international conferences and scholarly publications not intended for the REF).
- To contribute to knowledge exchange activities within the wider academic community and other activities designed to ensure that appropriate impact of the research (outside academia) is achieved.
- To contribute to the development and maintenance of research resources (examples of which include household surveys, databases, specialist equipment and infrastructure, software packages and computer models) used within the Department or wider user community external to the Department.
- To supervise and/or mentor postgraduate research students into relevant communities of research at Essex as appropriate to the departmental context to generate meaningful connections between research and education at Essex.
- To research and develop Bayesian computational models of emotions and beliefs dynamics of social media users integrating content and connectivity information.

- To develop reinforcement learning-based social media governance and intelligent feed selection mechanisms.
- To implement and advance state-of-the-art natural language processing algorithms to provide measurements of sentiment, bias, hatefulness, veracity, polarization, and sensationalism of social media content and integrate them with contextual information retrieval and feeds selection mechanisms.
- To provide APIs to integrate such algorithms and models in the Companion architecture.
- To liaise with other partners on this project, which includes travelling to other project sites.

Leadership and Citizenship

- To play an active and constructive role in the Department and engage in activities beyond your own research team, (e.g. open days, staff meetings and relevant committees), as may be reasonably required by the Head of Department.
- To proactively participate in and develop internal and external networks and establish links with relevant academic and professional bodies, contacts and employers.
- To support knowledge exchange activities, for example, by contributing to research projects funded by commerce, industry or public sector organisations.
- To engage in continuing professional development in relevant subjects/disciplines, incorporating the outcomes from research and scholarship, ensuring skills are up-to-date and applied in education and research.

These duties are a guide to the work that the post holder will initially be required to undertake. They may be changed from time to time to meet changing circumstances.

TERMS OF APPOINTMENT

For a full description of the terms of appointment for this post please visit:

<https://www.essex.ac.uk/staff/employment-policies-procedures/my-contract>

UNIVERSITY OF ESSEX
PERSON SPECIFICATION

JOB TITLE: Senior Research Officer (ASR); Grade 8	POST REF: REQ02715
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QUALIFICATIONS / PROFESSIONAL RECOGNITION	Essential	Desirable
■ Relevant doctoral level degree in in Machine Learning, Natural Language Processing, Statistics, Physics, Mathematics, Computer Science or a closely related discipline or be close to completion of PhD.	X	
■ Fellowship of the Higher Education Academy or the ability to gain professional recognition at this or a higher level if appropriate.		X
■ MSc in Physics, Mathematics or Computer Science or equivalent experience	X	
EXPERIENCE/KNOWLEDGE	Essential	Desirable
■ Evidence of a developing research agenda, engagement in high-quality research activity and a developing research profile.	X	
■ A developing record of publications in internationally recognised, reputable journals (and other media of similar standing) appropriate to career stage and discipline norms, or evidence of research outputs such as reports and briefings.	X	
■ Experience of or the ability to generate income to support research and/or knowledge exchange appropriate to career stage and discipline norms.	X	
■ Experience of working with developing and/or maintaining research resources used within a Department or wider user community external to the Department (examples include household surveys, databases, specialist equipment and infrastructure, software packages and computer models).	X	
■ Experience of contributing to small research programmes or defined areas of larger projects, and of developing research objectives and proposals	X	
■ Strong theoretical knowledge of state-of-the-art machine learning approaches	X	
■ Demonstrable experience in working with state-of-the-art machine learning libraries including deep learning packages	X	
■ Good theoretical and applied knowledge of natural language processing techniques with a particular focus on social media analysis, sentiment analysis and hate-speech detection		X
■ Experience with dynamic systems and/or time series modelling		X
■ Experience with model-based reinforcement learning algorithms		X
■ Good knowledge of information retrieval and recommender systems		X

■ Good knowledge of (social) network analysis		X
SKILLS/ABILITIES	Essential	Desirable
■ The ability and willingness to engage in knowledge exchange and outreach activities.	X	
■ The ability and willingness to complement and enhance the research project/department/school's education and research strengths and areas of planned development.	X	
■ Strong communication skills, both written and verbal.	X	
■ An appreciation of the value of appropriate technologies in research and an ability and/or willingness to deploy these when relevant.		X
■ Very strong programming skills (preferably in Python or Java)	X	
■ Strong publication record in the areas of the project		X
■ Excellent project management skills		X
■ Experience contributing to reports and deliverables for publicly funded projects		X
■ Ability to work independently and as part of a team		X
PROFESSIONAL VALUES	Essential	Desirable
■ A commitment to helping develop dynamic communities of research and education at the University.	X	
■ A strong and well-articulated commitment to the University's values and mission to deliver excellence in research (integrated academic practice).	X	
■ A strong and well-articulated commitment to the University's values and mission to deliver excellence in both education and research (integrated academic practice).	X	
■ A commitment to respect individual learners and diverse learning communities and to promote participation in higher education and equality of opportunity for all learners via student-centred practice.	X	
■ An acknowledgement of the wider context in which higher education operate.	X	
■ A willingness to participate in extra curricula departmental activities (e.g. supporting recruitment, welcome and employability).	X	
ELIGIBILITY	Essential	Desirable
The ability to meet UK 'right to work' requirements.*	X	

* The University has a responsibility under the Asylum, Immigration and Nationality Act 2006 to ensure that all employees are eligible to work in the UK. Prior to commencing employment, the successful candidate will be asked to provide documentary evidence to this effect. The University may

be able to offer Tier 2 Sponsorship for this role. For further information about UK immigration requirements please follow this link <https://www.gov.uk/government/organisations/uk-visas-and-immigration>

ADDITIONAL INFORMATION

Department

You can find more information about the department at the following link:

<http://www.essex.ac.uk/csee>

People Supporting Strategy

Please find a link to the People Supporting Strategy.

<https://www.essex.ac.uk/-/media/documents/directories/human-resources/people-supporting-strategy.pdf>

General information

Informal enquiries may be made to Dr Dimitri Ognibene (e-mail: dimitri.ognibene@essex.ac.uk). We are more than happy to answer any questions that may arise. However, all applications must be made online.

At the University of Essex we use consistent language and terminology that articulates more clearly the responsibilities for education, research and leadership/citizenship associated with each academic role. This will help new colleagues to understand the University values from the moment they engage either as an applicant or new colleague, and help them to understand the future career pathways available to them as they become more established in their role.

We advertise our salaries on a range to indicate the trajectory of progression that can be made. Appointments are usually made at the start of the salary range. The university salary structure includes automatic pay progression within the published grades, subject to service and performance. In addition to this, there are performance related annual pay review schemes in place.

Benefits

As an employer we offer a range of benefits and a commitment to career development and equal opportunities in an environment that both reflects and creates a rich interaction of people, disciplines and ideas.

- Pension scheme
- Generous holiday entitlement
- Competitive salaries
- Training and development
- Family Friendly policies
- On campus childcare facilities, for more information visit www.wivenhoeparkdaynursery.co.uk
- Relocation support package for qualifying staff
- Interest free season ticket loan
- Range of optional salary exchange tax benefits (pension and bicycle schemes)

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