 

**Postdoctoral Researcher**

**DTIF- DAVID - Data-centre Audio/Visual Intelligence on-Device**

**College of Science and Engineering**

**NUI Galway**

**Ref. No. NUIG 84-20**

Applications are invited from suitably qualified candidates for a full time, fixed term position as a Postdoctoral Researcher with the Department of Electronic Engineering, College of Science and Engineering at the National University of Ireland, Galway. This position is funded by EI and is available from 01.11.2020 until 31.10.2022.

More information about Xperi can be found at <https://www.xperi.com/>, and about SoapBox Labs at <https://www.soapboxlabs.com/>

The project is a collaboration between XPERI, SoapBox Labs and NUIG. Its main objective is the development of a multimodal (sound and vision) AI processing platform with low cost and low power consumption to be used for the creation of voice-enabled toys.

Embedded (on-device) processing of data is currently the preferred solution across the smart toy industry to enable Artificial Intelligence in smart toys. The key challenge remains how to deliver a high quality on device AI experience, with long playtime (battery life), in a cost-effective way, that requires ‘data-centre’ level processing – typically delivered via online cloud-based approaches.

**Job Description:**

A suitable candidate is required for WP Cognitive and Behavioural Analytics. The successful candidate will report to the Research Lead, project manager and lead-PI.

The successful candidate will review current state of the art in assessing how multiple modes of information such as speech, language, facial expressions, body posture, and gestures translate into human intent and behaviour through multimodal analytics, and will implement into the multimodal intent engine the most promising techniques and evaluate them.

**Duties:**

* Review & evaluate current state-of-art (SoA)
* Evaluate a selection of most promising SoA techniques to determine how multiple modes of information translate into human intent and behaviour.
* Implement & refine the most promising techniques to the SoapBox Labs multimodal Intent engine and after validation; at least two evaluate & refine cycles.
* Extend/improve/adapt/re-train techniques to improve performance for specific user populations (e.g. children, older adults).
* Explore the use of data-augmentation and synthetic data to reduce the size of datasets required for goal.

**Qualifications/Skills required:**

**Essential Requirements:**

* PhD in Engineering or Computer Science
* A minimum of 5 years research/ industrial experience
* Be capable of independent research at postdoctoral level.
* Strong background in state-of-art AI techniques, deep learning expertise, in particular experience in applying AI methodologies to solving Computer Vision problems.
* Detailed knowledge of Tensorflow, Pytorch and, ideally, other state-of-art neural network frameworks and their application to advanced engineering problems.

**Desirable Requirements:**

* Experience in cognitive or behavioural analysis from video, in speech and audio analysis or in advanced text-to-speech systems is highly desirable.
* Relevant research experience includes: advanced deep learning & GANs techniques in computer vision; advanced cognitive, behavioural or emotional analysis of subject from video, or hybrid imaging systems; advanced text-to-speech systems design; advanced speech analysis or voice synthesis; advanced optimizations of CNN networks including binarization or ternarisation; hardware design of AI modules; low-level optimization of GPU code;
* Experience of working in a team environment, with industry and in a results-oriented research environment.

**Salary**: €37,874 to €46,338 per annum (public sector pay policy rules pertaining to new entrants will apply)

**Start date**: Position is available from 01.11.2020.

**Continuing Professional Development/Training**:

Researchers at NUI Galway are encouraged to avail of a range of training and development opportunities designed to support their personal career development plans.

Further information on research and working at NUI Galway is available on [Research at NUI Galway](http://www.nuigalway.ie/our-research/)

For information on moving to Ireland please see [www.euraxess.ie](http://www.euraxess.ie)

Further information about NUIG is available at <http://www.nuigalway.ie/>.

Informal enquiries concerning the post may be made to Professor Peter Corcoran by e-mail: [peter.corcoran@nuigalway.ie](mailto:peter.corcoran@nuigalway.ie)

**To Apply:**Applications to include a covering letter, CV, and the contact details of three referees should be sent, via e-mail (in word or PDF only) to Peter Corcoran at [peter.corcoran@nuigalway.ie](mailto:peter.corcoran@nuigalway.ie)

Please put reference number **NUIG 84-20** in subject line of e-mail application.

**Closing date for receipt of applications is 5.00 pm 1st October 2020**

Due to the University closure related to COVID-19, interviews may have to take place virtually and start dates may need to be delayed

All positions are recruited in line with Open, Transparent, Merit (OTM) and Competency based recruitment

National University of Ireland, Galway is an equal opportunities employer