Postdoc/Research Associate (all genders) - Computational Cognitive Science

Prof. Charley Wu invites applications for a **Postdoc** to join his ERC-funded project, "*C4: Compositional Compression in Cognition and Culture,*" which investigates how principles of **information compression and compositionality** shape human learning and knowledge transmission at three interconnected scales: individual cognition, group collaboration, and cultural evolution. Your role will be to provide guidance and scientific support to three associated PhD researchers. You will have substantial freedom to develop and pursue your own research ideas aligned with the broader goals of the project, such as investigating individual learning, collaborative problem-solving, or cultural evolution through innovative computational and experimental methods. You will benefit from a vibrant interdisciplinary environment and strong collaborative networks, enabling you to further expand your expertise and advance your academic career, with ample opportunity to establish your own lines of inquiry.

The deadline is July 16th, 2025 or until filled.

Prof. Wu (incoming W3 Professor for Computational Cognitive Science) leads the "Human and Machine Cognition" lab, situated at the intersection of cognitive science and machine learning. Employing rigorous theoretical frameworks and diverse computational methods—including Bayesian modeling, reinforcement learning, program induction, and information theory—the lab investigates foundational aspects of human cognition, learning, decision-making, social interaction, and cultural evolution. Prof. Wu's research is funded by Hessian AI, an ERC Starting Grant, and a LOEWE Start Professorship.

Positions will be based at TU Darmstadt, Germany, with flexible starting dates. Salaries are competitive by U.S. and European standards and commensurate with experience and expertise (German pay scale [100% TV-E14](#) for 2 years). The working language of the lab and broader academic community is English; fluency in German is not required, though the university provides free German language courses for interested scientific staff. For more information on Prof. Wu's research group, see: [hmc-lab.com](#)

About us:
TU Darmstadt stands for excellent and relevant science. We shape far-reaching processes of global change—from energy transition to artificial intelligence—through outstanding scientific knowledge and innovative academic programs. Our cutting-edge research focuses on three fields: Energy and Environment, Information and Intelligence, Matter and Materials. With strong ties to the Frankfurt Rhine-Main metropolitan region (~18 mins to Frankfurt HBF by train), we have an exceptionally international orientation and actively support European integration.

About our department:
TU Darmstadt is one of Europe's leading institutions in cognitive science and artificial intelligence ([csrankings.org](#)), bringing together interdisciplinary research on cognition through the [Centre for Cognitive Science](#) and intelligent systems as a member of the European Laboratory for Learning and Intelligent Systems ([ELLIS](#)). The department provides a vibrant, inclusive research environment and encourages extensive collaboration with leading cognitive science and AI researchers, both locally (via the [Hessian AI Center](#)) and internationally.

Your profile:

- An excellent PhD in Cognitive Science, Computational Neuroscience, Psychology, Artificial Intelligence, or a closely related discipline
- Demonstrated expertise and a strong publication record in one or more of the following areas: computational modeling, Bayesian inference, reinforcement learning, cultural evolution, or information theory
- Extensive experience in quantitative methods and advanced computational modeling techniques

- Excellent programming skills (Python, R, MATLAB, JavaScript)
- Proven ability for scientific leadership and experience supervising or mentoring junior researchers
- Outstanding analytical, organizational, and interpersonal skills, along with a strong collaborative working style
- Excellent written and spoken English; German language skills are not required

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Your tasks:

In particular, the tasks include:
- Conduct independent research aligned with the overarching goals of the ERC-funded project "C4: Compositional Compression and Cultural Cognition," with ample freedom to define your own research directions within this broad framework.
- Develop, implement, and supervise innovative computational models employing Bayesian inference, program induction, reinforcement learning, information theory, or related methods.
- Contribute to and collaborate on the design, analysis, and interpretation of empirical studies involving behavioral experiments, transmission-chain paradigms, or analysis of textual corpora.
- Provide guidance and scientific support to PhD students working on complementary aspects of the project, fostering a collaborative research environment.
- Disseminate your research findings through publications in top-tier journals and presentations at international conferences.
- Engage actively with international research networks, both within cognitive science and artificial intelligence communities, to enhance scientific exchange and collaboration.
- Contribute to grant reporting and administrative activities associated with the ERC project, helping shape the strategic direction and scientific impact of the research group.

We offer:

TU Darmstadt offers varied and challenging assignments, freedom to work independently, the latest technologies, good collaboration between colleagues in partnership, needs-based training opportunities and customized personnel development.

The fulfillment of the duties likewise enables the scientific qualifications of the candidate.

- Development and organisation – comprehensive in-house training offers, including the opportunity for continuing education and development;
- Annual leave/educational leave – 30 days annual leave (full-time employment) and 5 days educational leave;
- Sustainable and mobile – eligibility to free public transport in the state of Hesse with the LandesTicket Hessen (Hesse StateTicket) in accordance with the currently valid collective agreement, in addition to opportunities to working mobile at times;
- Fit and healthy – free of charge preventive medical check-ups and a wide-ranging subsidised sports programme
- Work-life balance – flexible working time models, plus BGM (*Betriebliches Gesundheitsmanagement* – University Health Management);
- Pension scheme – supplementary public service pension scheme (VBL) in accordance with the currently applicable regulations;
- University bicycle
- Family-friendliness/compatibility of family/care/career – (university-run) childcare services, child allowance (based on the collective agreement), childcare programmes during school holidays

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General information, data privacy:

TU Darmstadt intends to increase the number of female employees and encourages female candidates to apply. In case of equal qualifications, applicants with a degree of disability of at least 50 or equal will be given preference. Remuneration is in accordance with the collective agreement for the Technical University of Darmstadt (TV - TU Darmstadt). Part-time employment is generally possible.

By submitting your application, you agree that your data may be stored and processed for the purpose of filling the vacancy. You can find our [privacy policy](#) on our webpage.

Contact:

If you have any questions about this position, please contact Charley Wu (charley[dot]wu[at]tu-darmstadt[dot]de).

Your application should be written in **English** and include a cover letter, CV, degree certificates, graduate transcripts, and contact info for 2 references. Most importantly, **include a short research concept** (1-2 pages) detailing your research interests, expertise, and an explanation for why you are a particularly good fit for the position (references to prior published research and links to public code repositories are appreciated).

Submit your application here: https://www.career.tu-darmstadt.de/HPv3.ApplicationForm/ShortApply/Index/48028

In case of any technical issues please contact Charley Wu with all application materials attached in a single PDF. The **subject of the email** should be "*Postdoc application for Computational Cognitive Science*"