

Postdoctoral Researcher position in Cooperative security
for 5G and the Internet
Aalto University School of Electrical Engineering

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Posted Apr. 10, 2019, set to expire Aug. 10, 2019

- Job Title** Postdoctoral Researcher position in Cooperative security for 5G and the Internet
- Department** Department of Communications and Networking
<https://www.aalto.fi/department-of-communications-and-networking>
- Institution** Aalto University School of Electrical Engineering
Helsinki, , Finland
- Date Posted** Apr. 10, 2019
- Application Deadline** May 5, 2019
- Position** According to agreement
- Start Date**
- Job Categories** Post-Doc
- Academic Field(s)** Computer Science
- Job Website** <https://www.aalto.fi/open-positions/postdoctoral-researcher-position-in-cooperative-security-for-5g-and-the-internet>
- Apply Online Here** https://rekry.saima.fi/aaltohome/aew.html?did=5900&lang=fi&job_id=2316&jc=6
- Apply By Email**
- Job Description**

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Aalto University is a community of bold thinkers where science and art meet technology and business. We are committed to identifying and solving grand societal challenges and building an innovative future. Aalto University has been ranked the 9th best young university in the world (Top 50 under 50, QS 2018) and one of the world's top technology challenger universities (THE 2017), for its outside-the-box thinking on research collaboration, funding and innovation. Aalto has six schools with nearly 11 000 students and 4000 employees of whom close to 400 are professors. Our campuses are located in the capital area of Finland. With 37% of our academic faculty coming from outside Finland, we are a highly international community with strong academic standing.

At Aalto, high-quality research, art, education and entrepreneurship are promoted hand in hand. Disciplinary excellence is combined with multidisciplinary activities, engaging both students and the local innovation ecosystem. Our main campus is quickly transforming into an open collaboration hub that encourages encounters between students, researchers, industry, startups and other partners. Aalto University was founded in 2010 as three leading Finnish universities, Helsinki University of Technology, the Helsinki School of Economics and the University of Art and Design Helsinki, were merged to strengthen Finland's innovative capability.

Department of Communications and Networking at Aalto University invites applications for Postdoctoral Researcher position in Cooperative security for 5G and the Internet

Are you a passionate developer of Internet and mobile network security? Are you passionate about experimental networking research?

In this position you will have a chance to make an impact on the future of the Internet, 5G and 6G security and trust and facilitate the use of IP and mobile networks in critical use cases.

Our group has developed a concept of cooperative firewalling that allows controlling all flow admittance by policy. We have also the first version of the security policy management system and the first tools for policy sourcing (see [GitHub/Aalto5G](https://github.com/Aalto5G) and re2ee.org). The architecture uses Software Defined Networking and is virtualized.

In this position you can refine and further develop the ideas, the architecture and the implementation and verify the concepts in Industrial Internet use cases that we are now pursuing making use of our 5G test network in Finland.

Cooperative security assists the end systems in the Internet using cloud-based firewalling, communications security policy management, centralized or distributed reputation and trust management etc. The goal is to achieve a substantially higher level of end system security overall compared to state of the

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art. The solutions are best suited to improve the security of low power and inexpensive (Industrial) Internet of Things or battery powered mobile devices as well as protecting all end systems from Distributed Denial of Service attacks. The solutions are needed to achieve ultra-high reliability targeted in 5G. You will work in the context of a number of 5G related projects we are participating in. The software should be usable in the 5G test network we are building in Otaniemi (5GTNF). Aalto has a 5G frequency license for research and education in the 3.5 GHz band and we are upgrading our current LTE and NB-IoT network with 5G gNBs now.

Your role and goals

You will instruct Master students, integrate the components into a package of experimental software (or running code) that can be used by other research groups with whom we cooperate in Finland and elsewhere. You will produce high profile, signature publications on our results.

The position will be filled as soon as possible and will last for 2 years.

Your network and team

In the 5G projects we cooperate with companies like Nokia, Ericsson, F-Secure. One use case is Smart Grid security. You would lead the security task a nationally funded Smart Grid project. You will also participate in the 5G Force platform project that is at the heart of the 5G and Beyond research program funded by Business Finland.

Your experience and ambitions

We expect you to be skilled in Python programming and proficient in developing container software as well to have experience in open source software publishing. Skills in C-programming are a bonus. We expect you to be able to attract and inspire students to work with you towards common goals. You will also participate in teaching and instructing B.Sc and M.Sc theses and smaller student projects. We expect you to be passionate about experimental networking research. You have an opportunity to create experimental software that many other Universities and research institutes will use and develop further and be an author of signature publications to come on cooperative Internet security. We highly appreciate if you have previous publications in the area of Internet security and a good GitHub profile, indicative of your software development skills.

Ready to apply?

If you want to join our community, please submit your application through our recruitment system no later than May 5, 2019.

To apply, please share the following application materials with us:

- Application letter
- CV

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- List of publications
- Research statement
- Recommendation letter(s) from previous supervisors or employers

If you wish to hear more about the position, you can reach out to Professor Raimo Kantola raimo.kantola@aalto.fi (research related information) or HR Coordinator Katja Korpinurmi katja.korpinurmi@aalto.fi (application process, practical arrangements).

About Finland

As a living and work environment, Finland consistently ranks high in quality-of-life. Two years in a row Finland has been named the happiest country in the world in a study by the United Nations. For more information about living in Finland, please visit our information pages for international staff: <https://www.aalto.fi/aalto-university/international-staff-guide>

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Professor Raimo Kantola
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