

Summer jobs in the Department of Communications and Networking



Department of Communications and Networking is the biggest research and university education unit in Finland. The Department consists of 9 professors, a staff of 90 persons and an annual turnover of 5 M€. Annually, approximately 80 M.Sc.'s and half a dozen D.Sc.'s graduate from the department.

Activity of the department is multidisciplinary covering communications, networking, internet technology, network economics, user oriented design and teletraffic theory.

Present emphasis in the research is on the design and analysis of future Internet and future wireless technologies and systems. Among the Finnish university units, the department is the most active and visible unit in Internet standardization.

The department is responsible for the communications engineering degree program including 7 major subjects. Additionally, the department organizes the international Master's programme from which over 80 M.Sc.'s have graduated.

Come to us to learn new technology!

We can offer you a front row seat to study and do research on state-of-the-art communication systems and networks in a youthful and dynamic working environment. It is also possible to do studies (e.g., the B.Sc thesis) during your summer trainee period.

To be successful in your summer job you must have earned more than 100 credits by the beginning of the summer 2008. Job salary is based on UPJ (salary system of universities) and is 1415 – 1918 €/month depending on your credits and study success.

Jobs 1 – 5 are for students which have radio communications as their major or minor subject. In job 6 good Matlab skills and understanding of communication basics are needed. Jobs 7 – 8 are for students which have networking technology as their major and minor subject.

1) Wireless sensor networks (professor Riku Jäntti)

Finnish industry has a growing interest in wireless sensor and actuator networks. In our department, 3 on-going research projects deal with improving the reliability of data transmission and self-organizing capabilities of sensor networks.

Your task is to participate in developing communication solutions for wireless sensor networks. The task can be related, for example to performance analysis of protocols or development of the test network.

2) Performance analysis of wireless networks (professor Riku Jäntti)

Certain critical data transmission systems require a high tolerance for interference.
Your task is to analyze the performance of wireless networks by simulating or making laboratory measurements.

3) Future communication systems (professor Olav Tirkkonen)

The Department of Communications and Networking develops new wireless communication methods in cooperation with the Finnish industry.
Your task is to participate in the research on physical layer techniques (OFDM and MIMO among others) and to develop higher layer protocols that utilize physical layer measurements.

4) New radio network topologies and/or flexible use of frequency resources (professor Jyri Hämäläinen)

The increasing demand for mobile data services requires more flexible radio networks. On the other hand, the scarcity of the radio spectrum necessitates adaptive usage of the frequency resources.
Your task is will be to do research in the area described above, but the details will be determined based on your study background.

5) Measurements of radio interface (teaching researcher Kalle Ruttik)

In radio communication systems, measurements of radio interface and simulations support each other. We have devices and software for both purposes. In our use, we have PC computers, WLAN cards, a radiocahannel simulator and a state-of-the-art spectrum analyzer.
Your task is to develop a laboratory work in which measurements of radio channel, spectrum and bit rate are combined.

6) Simulating a wireless communication system by using Matlab (researcher Mika Husso)

Matlab is suitable tool for simulating communication systems. These simulations are suitable for course exercises.
Your task is to develop a wireless communication system by using Matlab and create an exercise. Radio connection is replaced by using sound and thus the loudspeaker simulates the transmitter antenna and the microphone simulates receiver antenna.

7) Statistical analysis of mobile service usage (professor Heikki Hämäläinen)

We are doing research in cooperation with the Finnish industry on the usage of mobile services from a technoeconomical perspective by using large sets of measurement data.
Your task is participate in the statistical analysis of complex data.

8) Developing laboratory works for network technology (laboratory engineer Markus Peuhkuri)

In network technology we have modern devices and software which are used on networking laboratory courses. These works are continuously renewed and new works are all the time developed.
Your task is to cooperate with course personnel to develop laboratory works for the courses.

Send your application not later than 22.2.2008 via email to the address hakemus@netlab.tkk.fi. Include in your application your Oodi registration document, your lecture plan for the Spring 2008, CV and a short informal application in which the job(s) you apply is mentioned and reasons why you are the person we are looking for.

If you are interested in more than one job, please let us know your preference by numbering the jobs 1 ...N.

For more information about the jobs 1 – 6 please call researcher Seppo Saastamoinen, (09) 451 5417 and about the jobs 7 – 8 please call laboratory engineer Markus Peuhkuri, (09) 451 2467.