

STEM CAREERS AND SKILLS OF THE FUTURE

The **STEM Alliance** proposes a series of online events (webinars and chat discussions) and career sheets that aim to promote **Science, Technology, Engineering and Mathematics (STEM)** careers with role models. Representatives from companies – partners of the STEM Alliance – are invited to give online and written presentations to inform teachers about possible careers in their companies. Based on content picked up from the webinar and drawing on the experience of STEM experts, the STEM Alliance then creates a **career sheet** for the specific career profile presented in the online event. The career sheet serves as an awareness-raising tool for teachers and career guidance officers, as well as providing valuable information for the companies' own awareness-raising campaigns.

Please do keep in mind that the information in this career sheet relates closely to the context of the professional whose experience the career profile is based on. STEM professions, studies and challenges vary between countries and industry sectors.

Career profile: Hackathon Expert

Names and career titles:

Semyon Ovsyannikov, *Cisco Networking Academy Technical Manager, Western Europe & UKI*

Yvan Rooseleer, *Managing Director, Belgian IT Academy Support Center (BiASC)*

Wadih Zaatar, *DevNet Global Partnership Lead, Corporate Affairs, Cisco*



Semyon started at Cisco Networking Academy in 2007 as Technical Manager, and later was involved as Instructor-trainer and IT Education expert for program development in Russia. From 2013 to 2017 he represented Russia as Worldskills International Expert in Skill 39 – IT Network Systems Administration. Currently he supports the development of the [Networking Academy](#) the Western European region, UK and Ireland. His main goal is to ensure program quality by engaging with leading training centres.

Yvan studied a Master of Linguistics & Artificial Intelligence at the KU Leuven as well as a Master of Information Systems Management at the VU Brussels. He explores how to combine technology and education and strives for transforming real word challenges to learning opportunities. In 2005, he was active as Senior Lecturer at the [Odisee University College](#) in Brussels, where he also took on the position of Program Coordinator in 2007. In 2011, he worked as Instructor Trainer "Train the Trainer" in the domain of Information Technology. Since 2013, he is the Managing Director of the Belgian IT Academy Support Center ([BiASC](#)).





Wadih studied Computer Engineering at the Lebanese American University before he took on the position as Curriculum Leader for the Cisco Academy Training Center. In 2006, he started as Technical Manager at Cisco. He then moved to Canada as Networking Academy Area Manager. Since 2017, he is Business Development Manager for the DevNet Global Partnership Lead for Corporate Affairs.

What is this profile about?

As Hackathon Expert, you organise and run hackathons, which in broad terms, are events where people come together to solve problems.¹ One of the speakers described a hackathon as an active learning experience in which soft and technical skills are enhanced as well as collaboration. The duration of a hackathon can vary, but one to three days have been identified as a good length. A hackathon should always have specified theme. For instance, students can focus on prototyping a smart Internet of Things (IoT) device. In this case, students come up with an IoT solution to a relevant problem and prototype an IoT device, facilitated by an instructor. In the common phases of a hackathon participants need to:

- Develop a solution to a given challenge through ideation in teams
- Design technical flowcharts
- Build a working prototype (hardware and software) including a well-designed mockup
- Build a business plan that includes marketing, funding, sales etc.
- Present their team solution in front of a jury.

What are the key skills needed?

A hackathon offers plenty of opportunities for project-based learning and problem solving in a fun and meaningful way. A hackathon for students typically comes at the end of a preparation process. This is why it's important to have coaches on board who can teach and introduce students to technical and operational systems, design thinking, business modelling or public speaking. Other important competences include among others: communication, collaboration, critical thinking, empathising, social consciousness and teamwork.

Hackathons are conducted in multidisciplinary teams. Common roles within a hackathon include networkers (someone who is good at interconnecting devices and things to internet), makers (who create circuits and make physical things), developers (who write codes and create apps), designers (who make things look good and enjoyable to use) and business experts (who identify business and social opportunities and who can present the solution to a problem effectively).

How much and what does one need to study?

Just as the teams participating in the hackathon, the people involved in organising and conducting it should be from multidisciplinary backgrounds. As such, you need an organisation team that is solely responsible for the organisational and logistical aspects of the hackathon. For this, it can be useful to have studied project or event management. For a

¹ See <https://hackathon.guide/>

smooth induction of the participants, you need knowledgeable coaches who introduce the students to different areas of expertise and give support throughout the hackathon. These coaches should be experts in fields such as ideation, IoT technology, design thinking, prototyping, business modelling or pitching. Finally, you also need a jury consisting of a multidisciplinary panel of renowned and mainly external experts who are able to evaluate the students' solutions.

What are the possible places of employment?

As hackathon expert, the main field of employment is at the cross section of technological business and event management. Since a hackathon is a very specific event, it is good to diversify the search for employment in the sectors of technology and events. But also for participating students, the hackathon provides a number of opportunities. A hackathon is a win-win operation for education and business alike offering multifaceted opportunities for collaboration in a concrete and meaningful way. Innovation skills and creativity give students a head start for today's increasingly complex life and work environment.

What are the challenges of this job?

What is challenging is to prepare the hackathon thoroughly to ensure its smooth run. Without preparation a student hackathon will bring no interesting results. One of the speakers claimed that there can be no innovation and creativity without an in-depth preparation. Interesting ideas emerge through a combination of the topics which students have learned and experienced before as well as new concepts and skills learned in preparatory courses. But not only the students need to be well prepared - the teachers, coaches, jury members and organisation team need to be thoroughly briefed. This process can take approximately six to ten weeks.

Advice to teachers and parents

If hackathon runs late or over the weekend, you need the parents' or guardians' permission. The optimal age of the participants usually depends on the difficulty of the challenge and the problems you choose. The age of 12-13 is a good age to start, as students learn how to collaborate in a team early on. For more complicated problems, it makes sense to invite only older students.

Learn more:

- A special course for those who is interested in the topic of the webinar is available here: <http://cs.co/cisco4stem2019>. The course is running till 30 July 2020.
- For Design Thinking see e.g.: <https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process>
- For Ideation and Business Modelling see e.g.: <https://www.designabetterbusiness.tools/tools/business-model-ideation>