

# SUCCESS: Graduates of Ventspils University of Applied Sciences have created a company in the field of space modeling



Computer science graduates of Ventspils University of Applied Sciences have created a start-up company "Nanocraft" Ltd in the field of space modeling, informed Ventspils University of Applied Sciences public relations specialist Rota Rulle.

"Nanocraft" started a project in cooperation with the European Space Agency (ESA) this month. The aim of the project is to model the target comet of the ESA "Comet Interceptor" spacecraft, its activity and possible flight scenarios. Such a mission with an unknown target comet is being developed for the first time. Recent advances in computer science and photorealistic modeling are being used to test the Comet Interceptor cameras throughout the spacecraft's development. "Comet Interceptor" is planned to be launched into space in 2029.

The founders of the startup are Ventspils University of Applied Sciences graduates - Andris Slavinskis, Inese Lībiete and Uldis Locāns. The young entrepreneurs want to conquer the field of space modeling with modern 3-dimensional (3D) photorealistic technologies, which have already been evaluated by ESA and cooperation partners in Finland and Estonia.

In order to obtain the first ESA project, the "Nanocraft" team referred to the call of the 2023 national program of Latvia, which called for the development of new sectors of space technology in Latvia.

With the new project the startup commits to providing the Comet Interceptor camera teams OPIC, MIRMIS and EnVisS with synthetic photorealistic images depicting various comet flybys and potential comet activity. The project was launched on July 1.

Slavinskis explains that since the mission's target comet is not yet known, as it comes from the Epic-Orth cloud thousands of times farther than Earth from the Sun, synthetic images are used by young researchers to help develop and test the camera and on-board algorithms.

Lībiete worked at the Ventspils International Radio Astronomy Center (VSRC) during her master's studies, and after her studies gained extensive management, IT project and product development experience in various private companies, and Lībiete currently works in the UT "Comet Interceptor" OPIC team.

Locāns received a doctorate from the University of Latvia for his work at the Paul Scherer Institute in Switzerland and later gained experience at both Intel and Microsoft, where he still works.

After earning his doctorate in physics, Slavinski worked at NASA's Ames Research Center in California, where he developed space mission design capabilities for Nanocraft.

Ventspils University of Applied Sciences and VSRC are involved in the implementation of the ESA project, which are responsible for the modeling of comet activities, including the modeling of both the comet's atmosphere and the comet's tail. VSRC researcher Karina Šķirmante has previously modeled the activity of comets in the radio frequency band in order to assess the possibility of observing comets with Irbene radio telescopes.

he VSRC team's experience in high-performance computing (HPC) and data processing provides an opportunity to optimize the developed model on VSRC HPC clusters, a range of universities. The new project gives the VSRC team the opportunity to expand their experience and join the Comet Interceptor team of researchers and engineers, thus opening up new opportunities for collaboration. The involvement of Ventspils University of Applied Sciences is not a coincidence, because it was there that Slavinskis, Lībiete and Locāns obtained their bachelor's and master's degrees in computer science.

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