

Graduate Spotlight Series – Joschka Hoefling

an insight into a UVU graduate's journey in the drone industry



1. Which program did you study here at Unmanned Vehicle University?

a. I am currently studying the Doctorate in Unmanned Systems Engineering program. I am in my dissertation research phase, so I am close to completion.

2. Are you working as a freelance operator, own your own company, or work full time for a company within the unmanned systems industry? Is your day-to-day work related to your studies at UVU?

a. I have worked full time for a company within the industry the entire time I have been studying at UVU. My day to day work is directly related to what I have been studying in the Doctorate program. I have worked in the field of systems engineering for an unmanned aircraft design and manufacturing firm, while studying for my DSc in unmanned systems engineering.

3. Could you provide an overview of the type of work you do? Are you a service provider, consultant, manufacturer etc.?

a. I have worked for UMS Skeldar for the last 7 years. We design and build rotor wing unmanned aircraft systems. I started off as a systems engineer and held that role for the first 3-4 years of my tenure. I was then promoted to product management. At UMS Skeldar the product management role is still systems engineering focused, but it is a managerial role. I used to design various components and systems during my initial role. Now I oversee design processes, test flights, and the manufacturing processes for specific aspects of the aircraft system. As a systems engineer at UMS Skeldar I was focused much more on specific details of sub-systems and components, for example avionics. Now as a product manager I am responsible for producing product roadmaps and managing the various projects/programs that arise.

4. What types of customer verticals do you, or your company, service?

a. At UMS Skeldar we work with a variety of end users. We have a healthy customer mix of military, commercial, government, law enforcement, maritime safety agencies, search and rescue and many more.

5. Please highlight the major challenges you faced while getting started working in this industry. These could be either individual or industry related challenges. How did you overcome these challenges?

- a. EU is similar to US in terms of regulations halting business. Regulations are country specific and not applicable across the EU. UMS Skeldar has to approach each country authority every time they want to do business. Some of these agencies are dealing with drones for the first time, which adds an extra layer of complexity.
- b. Getting flight test permits for every test flight and demonstration is cumbersome.
- c. Product development has to be in line with regulations 12-18 months down the line. This can be a huge risk as forecasting new regulations in this industry can be very difficult. We must be prudent in investing time or capital in R&D because of the regulatory risk.
- d. Self-driving car companies are hiring a lot of talent in this industry in EU and taking talent away from drone companies. This sector of the unmanned systems industry is growing rapidly, and larger auto companies have the means to attract talented systems engineers.

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Side Summary Topics

Student Name

Joschka Hoefling

Company name

UMS Skeldar

Program of Study at UVU

Doctorate of Science Program in
Unmanned Systems Engineering

Location

Switzerland

Verticals served

- Systems Engineering and Product Management
- Military
- Government
- First Responders
- Maritime
- Commercial

Summary

Joschka Hoefling is a current student in UVU's Doctorate program. Joshcka is currently in the dissertation research phase of the program. He has been enrolled in UVU since 2015.

Joschka is a former systems engineer, and current product manager, for UMS Skeldar one of Europe's most prominent unmanned aircraft companies.

For the past 4 years he has been working full time while pursuing his DSc degree in unmanned systems engineering.



6. Please provide an overview of specific successes you have had in this industry, please also highlight any interesting, exciting, or unique projects you have had an opportunity to work on.

- a. Recently we completed a very unique and exciting demonstration with a military customer. We conducted a flight test in which the UAS operator was operating the system from a moving helicopter. Furthermore, this UAS was being operated in an active national airspace, beyond visual line of sight (BVLOS). This was a notable accomplishment for our company and our platform.
- b. Our first ever aircraft deliveries were very exciting. Although it may not seem that exciting, the many hurdles we had to clear just to get those first aircraft delivered made it a noteworthy accomplishment for us.

7. What are your plans for your career moving forward in the unmanned systems industry? How do you see yourself adapting with the emergence of new technologies, regulations, etc.?

- a. I see myself sticking with the unmanned systems industry. The truly difficult phases of doing business in the industry seems to have passed. I feel as if we have already laid the groundwork for conducting business in this industry. With that being said I see us accomplishing all of the fun stuff that we have talked about and planned for. We can finally push forward on the new projects.

8. Can you discuss specific courses you took here at UVU and how they were specifically relevant in your day to day work?

- a. UAV 702- UAS Flight Test & Evaluation- I had been familiar with manned flight testing, but only briefly. The class was very well organized, and the instructor guided the student in a detailed way from the fundamentals all the way to set up entire flight test program. I've used this interaction with the instructor and the class to get critical feedback on ideas etc., and then applied it to the real test campaigns I was running at work (link to a video from this time). This was probably one of the most demanding classes, but also one where I have learned a great deal. In the end I successfully finished the class, as well as the flight test campaign I was running at work. Because of taking UAV702 at UVU I was able to make a great contribution to improve the test strategies, verification, documentation and flight safety for my company.
- b. SYS601- Introduction to Systems Engineering- in System Engineering we learned the classical theory of system engineering as well as requirement engineering paired with a structured way of working. This still helps me in my everyday job. The class makes you understand that you need very clear requirements of what you want to achieve before you actual start the design, otherwise you can never succeed.
- c. UXV803- Autonomous Systems- Autonomous Unmanned Systems was also a great course where I learned a great deal about the differences of automation and autonomous systems and what will be necessary for unmanned aerial system to get where the great visionaries at UBER, Google etc would like to see with flying cars. Again, I wouldn't been able to comprehend what is going on without being pushed through the tough course work while at the same time being encourage by the teachers.

9. Upon reflecting on the aforementioned information, please provide a detailed overview of how Unmanned Vehicle University prepared you for a career in the unmanned systems industry.

- a. In my studies in Unmanned Vehicle University's Doctorate program I have learned.....a lot. I have really pushed my limits with studying a DSc program and working full time. Apart from the relevant coursework helping my career development, this experience has taught me a lot about my life/work skills. I started off working in an undefined industry, working for a start-up, and I was truly able to learn proper protocols, standards, and procedures, for this type of industry specific research and work from the program. The current and relevant industry experience of my professors at UVU really helped me achieve these improvements in my day to day work in the unmanned systems industry.
- b. This program absolutely had a positive impact on my career growth.
- c. This program is Definitely not for people who want to go the easy route....it is challenging. It is designed for people looking to make a difference/impact in the industry.

