

Reflections from Discovery Program Alumni

Jaime A. Arribas Starkey-El, Michael D. Skaggs, Jobin K. Kokkat, and Nicole E. Steiner

INTRODUCTION

The Johns Hopkins University Applied Physics Laboratory (APL) Discovery Program is a 2-year rotational program for select recent college graduates that consists of four rotational assignments spanning multiple technical organizations across the Laboratory. The assignments are typically 6 months in length each and are designed to provide staff members with work to challenge minds and stimulate professional growth. At the end of the program, staff members transition to permanent positions in one of their rotational groups.

Discovery staff members are able to make significant contributions to a wide range of challenges in technical groups across the Lab. Along the way, they gain broad exposure to technical areas, grow their professional connections, and develop their career foundations. Organized around these three tenets, this article includes brief reflections on the experiences of four APL staff members who were part of the program.

BROAD EXPOSURE

To many recent college graduates, one of the most appealing aspects of the Discovery Program is the opportunity to gain broad exposure to diverse technical areas, projects, and people around the Lab. Each of our four individual rotations allowed us to learn about many technologies, sample different APL departments/sectors, and gain insight into operational needs. Through the Discovery cohort, our host groups, and the projects we supported, we were able to better define our interests and determine which APL mission areas they best aligned with.

Jaime Arribas Starkey-El (Cohort 2015): The program helped me build organizational awareness and understand APL culture. I was directly exposed to operations and missions in the Research and Exploratory Development Department (REDD), the National Security Analysis Department (NSAD), the Space Exploration Sector (SES), the Force Projection Sector (FPS), and the Asymmetric Operations Sector (AOS) in just 2 years. In addition, I was able to learn about the Air and Missile Defense Sector (AMDS) and the Information Technology Services Department (ITSD) from my peers even though I didn't have formal rotations in those areas.

Beyond their groups or branches, many APL staff members are unaware of the numerous technical groups and contributions across APL. Through our individual rotations, cohort end-of-rotation presentations, and informal discussions, we learned about the day-to-day rhythms of many groups across the Lab. This information aptly positioned each of us to draw on our rotational experiences to identify best practices, subject-matter experts, and other resources.

Nikki Steiner (Cohort 2017): I still can rattle off the names of 80% of groups based on their group acronym! It's like an APL party trick. More importantly, becoming aware of different technical groups and mission areas has allowed me to make new technical and professional connections on my projects. As an example, my experience in an AMDS optics group allowed me to better inform the use of fiber optic sensors in REDD biomechanics tests.

We were encouraged to understand the big picture of what each group does and focus on answering the

question “Why?” for every task we were assigned. With only months in each rotation to make an impact and determine whether we fit well in the group, identifying the scope of our tasking and how it folded into each group’s mission was essential. Gaining this insight helped us make contributions sooner and understand how we might fit into the group/mission after our final placements. We often found that we integrated into each new group faster than in the preceding rotations.

Michael Skaggs (Cohort 2015): I’ve found that talking to others helps give you a broader idea of what’s going on and how your piece fits into the larger puzzle.

PROFESSIONAL CONNECTIONS

Another benefit of the Discovery Program was the natural networking that occurred during our rotations. We were able to create strong and enduring professional connections within our host groups, our cohorts, and beyond. The relationships we have formed with our host groups have enabled continued learning and mentorship.

Nikki Steiner: I still meet with my first section supervisor from my first rotation every month. While she is now chief scientist of her branch, and I work in another department on mostly unrelated technical areas, the mentorship I receive from this first-ever professional connection continues to be invaluable.

The program’s cohort structure facilitates a trusted community of peers who can engage in honest discourse about their experiences. Our cohorts provided a comfortable space for developing networking, communication, and team-building skills that we transferred to our technical groups. Having this support network is critical for many Discovery staff members as they engage in the process of discovering a technical, cultural, and mission fit at the Lab. This support network also spans cohorts. Each cohort has acquired a base layer of knowledge for future cohorts to build on. It’s amazing how much this knowledge sharing has evolved since the initial cohort in 2015. The community has grown from connecting via a single spreadsheet that was casually updated to communicating via regularly maintained Wiki pages and Mattermost channels. The program also organizes panel discussions, mentorship pairings, and social events that keep alumni engaged.

Beyond providing benefits for program staff, the networks

we establish during our rotations create new cross-department/sector technical communities for sharing best practices, techniques, and tools. These networks also accelerate innovation through internal funding mechanisms; many staff members have submitted proposals inspired by technical interactions they had with both their Discovery Program cohorts and other staff members they met during their rotations, and many of these proposals were awarded funding.

Michael Skaggs: I regularly lean on support from people I met in my rotations to minimize rehashing problems that have already been solved by other teams.

CAREER FOUNDATIONS

Sometimes the challenges of joining a new organization, transitioning from school to the workforce, and/or living independently for the first time can put career development on the back burner in the minds of early-career professionals. However, the Discovery Program provides a framework for professional development through professional skills training, conference attendance, and guided career development.

Jaime Arribas Starkey-El: Giving rotation briefings throughout the years, in addition to taking the Effective Presentation Skills course offered at APL, really helped me grow as a presenter. Furthermore, the general communications skills I was able to hone proved useful when successfully pursuing grants and opportunities.

Through our rotations, we were able to experience various management styles. As all Discovery staff members will attest, no two supervisors have the same



Discovery Program alumni (left to right): Justin Zobel, Nicole Steiner, Jaime Arribas Starkey-El, and Kelles Gordge.

management methods, and having the chance to adapt to these changes in styles creates a more well-rounded individual. Additionally, we learned how to quickly transition on to and off of projects, which has helped us to make immediate impact when joining new teams. We also learned about APL's professional staff classifications matrix, which characterizes and distinguishes the Lab's five professional staff classifications. The matrix, in conjunction with regular coaching, was a useful grounding tool for assessing our career growth when working under multiple management chains throughout the program. We now recognize that every staff member is an individual and there is no one-size-fits-all management routine. This recognition has helped us better empathize with others and discern what will set us up for success in our careers. As we have taken on more leadership roles, our lessons learned have informed our coaching and development of staff members on our project teams and in our sections.

Jobin Kokkat (Cohort 2016): Getting a deeper perspective on how to approach career development as a staff member really helped me take ownership of my career. As an example, through my coaching discussions and

self-reflections, I realized I enjoyed the idea of developing staff and decided I wanted to pursue line management. I developed a set of short-, mid-, and long-term goals that would enable me to acquire skills in areas that would be helpful to a supervisor. I then created action plans to achieve those goals, such as mentoring APL interns and becoming involved with my group's hiring initiatives.

CONCLUSION

All in all, our 2 years in the Discovery Program advanced our professional growth and have paid dividends for us personally and for APL, both while we were in the program and during our placements afterward. We gained unique understanding of APL's culture, operations, and organizational needs. We also learned the value of proactivity early in our careers. With this knowledge, we have thrived as technical contributors and as leaders. We are grateful for the opportunities afforded to us by the Discovery Program, and we encourage both members and hosting groups to take full advantage of the program's offerings.



Jaime A. Arribas Starkey-El, Asymmetric Operations Sector, Johns Hopkins University Applied Physics Laboratory, Laurel, MD

Jaime A. Arribas Starkey-El is a data scientist and software engineer in APL's Asymmetric Operations Sector. He has a BS in physics and a BS in engineering physics from Morgan State University and an MS

in electrical and computer engineering from the Johns Hopkins University Whiting School of Engineering. His day-to-day work consists of analyzing data to identify indicators of threats to the health and safety of civilians and soldiers. He also develops cyber-physical systems, application software, and machine learning models to automate the detection of these threats and facilitate more effective responses. His email address is jaime.arribas.starkey-el@jhuapl.edu.



Michael D. Skaggs, Force Projection Sector, Johns Hopkins University Applied Physics Laboratory, Laurel, MD

Michael D. Skaggs is a section supervisor in APL's Force Projection Sector. He has a BS in computer engineering from Shepherd University and an MS in computer engineering from the University of

Maryland, Baltimore County. Michael's background is in field-programmable gate arrays, digital signal processing, and very large-scale integration (VLSI) hardware design. He is currently engaged in developing, integrating, and testing algorithms and new methods of engagement in support of multiple electronic countermeasure systems. His email address is michael.skaggs@jhuapl.edu.



Jobin K. Kokkat, Force Projection Sector, Johns Hopkins University Applied Physics Laboratory, Laurel, MD

Jobin K. Kokkat is an analyst, project manager, and supervisor in APL's Force Projection Sector. He obtained a BS in aerospace engineering from the University of Illinois Urbana-Champaign and an MS in aerospace engineering from the Georgia Institute of Technology.

Jobin works in the field of air vehicle survivability and mission analysis, focusing on applying modeling and simulation to understand how entities and their capabilities will interact in an operational environment. He is a member of the American Institute of Aeronautics and Astronautics (AIAA) Survivability Technical Committee. His email address is jobin.kokkat@jhuapl.edu.



Nicole E. Steiner, Research and Exploratory Development Department, Johns Hopkins University Applied Physics Laboratory, Laurel, MD

Nicole "Nikki" E. Steiner is an electrical engineer in APL's Research and Exploratory Development Department. She has a BEng in electrical engineering from

Vanderbilt University and an MS in electrical and computer engineering from Johns Hopkins University. Nikki has experience in signal processing and analysis of biologically relevant signals and of remotely sensed data, and her research interests are in using statistical signal processing and data analysis techniques to synthesize information. Her email address is nikki.steiner@jhuapl.edu.