LOYOLA MARYMOUNT UNIVERSITY
SEAVER COLLEGE OF SCIENCE AND ENGINEERING
FACULTY SERVICE REPORT

(January 1, 2024 – December 31, 2024)

Name: Jared Coleman **Rank:** Assistant Professor

Department: Computer Science

SUMMARY OF ACTIVITIES

Teaching/Advising:
In 2024, my teaching and advising emphasized deepening students' understanding of computer science, promoting student research, and supporting LMU's mission of diversity, equity, inclusion, and anti-racism. I taught Algorithms & Analysis (CMSI 2130), designed a new graduate special topics course on Online and Decentralized Algorithms (CMSI 6998), and led a pre-college summer CS course with a field trip to Aerospace Corp. I mentored graduate student Kathan Pathak on generative AI research and advised four undergraduate students on diverse research projects.

Scholarship/Research/Creative Works:
My research addressed scheduling algorithms, AI for endangered languages, and decentralized systems. I submitted proposals totaling over $695,000 to NSF and AWS. I published papers at AmericasNLP (NAACL 2024) and IWOCA 2024, with additional papers accepted at IEEE IPDPS 2025 and multiple papers under review. I led 10 active research projects involving student collaborators.

Service:
I contributed to university service through the Indigenous Working Group and interdisciplinary AI discussions with Women's & Gender Studies. Community engagement included co-organizing Indigenous Heritage Month events and planning cultural signage projects for Ballona Park. Professional contributions included serving as reviewer for JCSS and SC 2024, and Track Chair for IEEE GHTC 2024.

COURSES TAUGHT

Semester	Course Number	Enrollment	Units
Spring 2024	N/A	–	–
Fall 2024	CMSI 2130	30	4

Course Descriptions:

- **CMSI 2130 - Algorithms & Analysis**: Core computer science course covering algorithm design, complexity analysis, and data structures.

New Course Development:

- Designed new graduate special topics course **Online and Decentralized Algorithms** (CMSI 6998), integrating theoretical foundations with real-world applications in distributed systems. (Scheduled for Spring 2025)

I. TEACHING / ADVISING

In 2024, my teaching and advising emphasized deepening students' understanding of computer science, promoting student research, and supporting LMU's mission of diversity, equity, inclusion, and anti-racism. I used project-based learning, hands-on assignments, and active discussions to foster critical thinking and engagement.

Teaching Activities

- **Taught**: *Algorithms & Analysis* (CMSI 2130) in Fall 2024
- **Designed**: New graduate special topics course *Online and Decentralized Algorithms* (CMSI 6998), integrating theory with real-world applications
- **Pre-College Summer CS Course**: Designed a two-week summer course and organized a field trip to Aerospace Corp to provide real-world exposure

Advising and Mentorship

Graduate Students:

- **Kathan Pathak**: Weekly mentorship on generative AI for culturally appropriate image generation for endangered language education

Undergraduate Students:

- Advised **Gabriel Twigg-Ho**, **Jason Chamorro**, **Diego Cuadros**, and **Matias Gonzalez** on diverse research projects (weekly meetings)

Mission Contributions

- Mentored students from underrepresented groups and promoted inclusivity in STEM education

II. SCHOLARSHIP / RESEARCH / CREATIVE WORKS

In 2024, my research addressed scheduling, AI for endangered languages, and decentralized algorithms—aligned with LMU's mission to solve societal challenges and promote interdisciplinary collaboration.

Proposals Submitted

- **NSF DLI-DEL** ($450,000): LLMs for endangered language preservation (PI, LMU lead)
- **NSF DLI-DEL** ($175,000): Task graph scheduling algorithm design
- **AWS AI** ($70,000): LLM-based machine translation for extremely low-resource languages

Papers Published (2024)

1. Jared Coleman et al. "LLM-Assisted Rule-Based Machine Translation for Low/No-Resource Languages". *AmericasNLP Workshop at NAACL 2024*.
2. Jared Coleman et al. "Linear Search for an Escaping Target with Unknown Speed". *IWOCA 2024*.
3. Ferreira da Silva et al. "Workflows Community Summit 2024". *Oak Ridge National Lab Technical Report*.

Papers Accepted for Publication

1. Jared Coleman and Bhaskar Krishnamachari. "Comparing Task Graph Scheduling Algorithms: An Adversarial Approach". *IEEE IPDPS 2025*.

Papers Under Review

1. Coleman et al. *IEEE INFOCOM 2025*
2. Coleman et al. *NAACL 2025*
3. Coleman et al. *SIROCCO 2025*
4. Coleman et al. *CIAC 2025*
5. Coleman et al. *Journal of Computer and System Sciences*

Works in Progress

1. **Stochastic/Online Scheduling** – Collaborators: Gabriel Twigg-Ho, Jason Chamorro
2. **Dynamic Workflows** – Collaborator: Matias Martinez
3. **Culturally Appropriate AI Images for Language Education** – Collaborator: Kathan Pathak
4. **RAG + LLM Rule-Based Translation for Endangered Languages** – Collaborator: Diego Cuadros

5. **Faulty Delivery in the WiFi Model** – Collaborators: Evangelos Kranakis, Danny Krizanc, Oscar Morales-Ponce
6. **Multi-Speed Cow Path Problem** – Collaborator: Oscar Morales-Ponce
7. **WFChef Workflow Pattern Detection Bounds** – Collaborators: Sammy Santos, Tainã Coleman
8. **Parametric Scheduling with Constraints** – Collaborators: Amato, Bastiaansen, Datema, Fogli, van der Geest, Krishnamachari, Kudla, Sanchez, Suri (preparing for ICMCIS 2025)
9. **Federated Fine-Tuning on the Blockchain** – Collaborators: Sotiropoulos, Lei, Valapu, Krishnamachari
10. **LLM Probing** – Collaborators: Krishnamachari, Ayah League

III. SERVICE

In 2024, I advanced LMU's mission through interdisciplinary service, community engagement, and DEI advocacy.

University Service

- Contributed to discussions on integrating AI with disability services (CS + Women's & Gender Studies)
- Participated in the Indigenous Working Group to support indigenous initiatives

Community Engagement

- Co-organized Indigenous Heritage Month events with Nicolas Rosenthal
- Planned cultural signage projects with Lisa Fimiani for Ballona Park

Professional Contributions

- **Reviewer**: *Journal of Computer and System Sciences*
- **Reviewer**: *Supercomputing (SC) 2024*
- **Track Chair**: *IEEE GHTC 2024*

FACULTY SERVICE REPORT
SIGNATURE PAGE

Faculty Member Certification:

I certify that this Faculty Service Report accurately represents my activities for the calendar year 2024.

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Faculty Signature Date

Department Chair Review:

I have reviewed this Faculty Service Report and discussed it with the faculty member.

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Department Chair Signature Date

Comments:

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Dean Review:

I have reviewed this Faculty Service Report.

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Dean Signature Date

Comments:

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