

Fanshawe College

FIRST: Fanshawe Innovation, Research, Scholarship, Teaching

PAC Minutes

Computer Programming and Analysis

3-2023

Program Review - EFG Minutes - CPA-GDP

Fanshawe College

Follow this and additional works at: https://first.fanshawec.ca/cae_infotech_compprogramanalyst_pac

Attendees

Fanshawe Attendees

- Dev Sainani, Associate Dean, School of Information Technology
- Prini Dhawan, Program Manager, School of Information Technology
- Michael Feeny, Program Coordinator, School of Information Technology
- Jim Hooper, Program Coordinator, School of Information Technology
- Annalisa Minniti, Academic Services Consultant, School of Information Technology
- Lianne Wong, Coordinator, School of Information Technology
- Amelia Ertel, Co-op Consultant
- Ela Smith, Curriculum Consultant, Centre for Academic Excellence
- Alysha McComb, Advancement and Alumni
- Colleen Kelsey, Program Review and Development Coordinator, Centre for Academic Excellence

External Attendees

- Matthew Douglas, Software Engineer, Tradelite Solutions
- Steve Gauthier, Chief Technology Officer, Gateseven Media Group
- Jeff Craig, Manager, Software Development, Buckland
- Andy Hurst, Manager, Software Development, Buckland
- Ryan Price, Chief Executive Officer, Cardinal Entertainment Inc.
- Grant Street, CEO, My Party Album Inc.
- Jayna Sweeney, VP, Operations & Corporate Services, Utilismart Corporation
- Lukas Gustafson, Ubisoft & Fanshawe Faculty
- Belal Tassi, VP Information Management & Security, Sagacity Software Inc.
- Frank Sargent – Info Tech Research Group
- Alex de Deckere, Director of Development & QA, LBMX
- Mark Markulec, President CTO of Joydrop
- Paolo Testa, Public Sites & Tools Product Group Technology Lead, TD Bank

Regrets

- Mary Pierce, Dean, Faculty of Business, Information Technology and Part-time Studies
- Irene Gelyk, Founder, 2plus2 Consulting Inc.
- Marvin Simpson, Senior Manager – Application Support, IBM Canada Ltd.
- Oscar Lara, Software Analyst, LHSC
- Antoun Harrouk, Senior Machine Learning Engineer, CARFAX
- Steven Bendis, Infrastructure Team Lead, J.D. Power
- Deborah Washburn, AVP, Professional Services Delivery, Digital Boundary Group
- Tyler Reguly, Senior Manager, Security Research & Development, Fortra
- Jordan Wootton, IT Developer, Canada Revenue Agency
- Bob Allen, Sr. Technical Lead, IC Technology, Canada Life

Introductions and Process Overview

- Meeting attendees introduced themselves.
- Ela Smith, Curriculum Consultant, provided an overview of the meeting purpose and goals for discussion.
- Jim Cooper provided a program snapshot of the CPA3 program.
- Michael Feeny provided a program snapshot of the GDP2 program.

Panel Discussion

What key characteristics, knowledge and skills would you seek in a recent graduate prior to employing them in your organization?

- Sometimes graduates are too independent
- Sample interview question, “What do you do when your manager is not available and you are stuck on a problem?”
 - The recent graduates often say “keep going”
 - More collaboration is required and consulting in terms of being creative
 - If you run into a tough problem its okay to take a break, ask for help, switch gears (versus continuously pushing against a problem)
 - Resiliency and tenacity are important; but it’s a time issue when recent graduates take too long on a single task or project
- Co-op graduates are well rounded
- Co-op provides experience with team work – understand the importance of working as a team
- Linux skills could be increased
- Lower level skills could be strengthened (e.g., hardware software work, embedded programming, file system work)
- Free thinkers, imagination
- More mobile app development
- Knowledge of importance of cyber security

Recommendation(s):

- Review curriculum to ensure the following topics are embedded into the curriculum. Adjust curriculum, as needed.
 - Linux skills
 - Mobile app development
 - Lower level skills such as hardware/software work, file system work
 - Problem solving skills; knowing when to ask for help

For those that have previously employed our graduates, what are some of the key strengths they possess? Areas for improvement?

- Ability to have a conversation; good interview skills
- Importance of building rapport
- Co-op prepared for graduate for hands-on experience and ability to interview for positions
- Personality; ability to speak freely and strong technical skills
- Strong interview skills for co-op placement

What types of experiential learning opportunities could we incorporate into our programs? (e.g., placement, co-op, live-client projects, Job Skills for the Future, SILEx)

- Students who have multiple co-op experiences at same company tend to get hired; benefit for employer to be able to vet and train prior to full-time hiring
- Riipen – Joydrop has used this program to have a business problem to solve (e.g., their website redesign); great opportunity to work on real world issues

- Longer co-op – 8 months can increase exposure to projects and experience for students (e.g., makes the student feel like an employee)
- Co-op experiences can also be across multiple organizations which allows student to gain exposure to adapt to different organizations
- Job shadowing on projects which could be a mentorship opportunity (especially in a 1:1 setting)
- Incorporate a live client project (e.g., company that uses older code – upgrade)
- Security and privacy around cookies and third party – ethics around these situations
- Connect student projects to things going around in the real world – community project with organizations on developing interests
- For GDP1, there are two application courses which have projects; some students arrange their own live client experience
- Opportunity to host events (e.g., hackathons, code jams, Girls Rock IT)
- Privacy and security elements and also importance of an awareness of secure coding/secure configuration/architecture; DevSecOps and code testing

Recommendation(s):

- Consider an 8-month co-op model to allow students to be with one employer for longer periods.
- Consider adding a job shadowing program for student mentorship to visit local organizations to learn about roles and real projects.
- Consider hosting a hackathon, code jam or game jam.
- Review SILEx for both GDP and CPA to ensure live client projects are being incorporated (e.g., through co-op experience or through course work).

How is artificial intelligence software, such as ChatGPT, being used in your organization's day-to-day activities and work (if it is being used)? How can we prepare our students to work with or without the use of it?

- ChatGPT, teach the theory of how it works (e.g., neural networks, algorithms, Monte Carlo systems)
- Provide students a primer of how it works (e.g., play with tensor flow (with or without Python) even with a java script library)
- It is moving quickly – no way college or university can keep up with it; much better to keep it to fundamentals to get an awareness about the base theory
- Cardinal Entertainment Inc is using it; practical application is that they had developers develop scripts which took a co-op student 6 hours to write the code. When given the parameters, ChatGPT was able to write similar code in 4 seconds (it was not perfect, but usable)
 - Next step is to use the bot for inspiration – it's not cut and paste, but it is a tool that can be used for customizations as it knows all the languages
 - Helpful as it speeds up the learning curve
 - Use it to bounce ideas off – it's not abstract, its concrete output
 - We must embrace some aspect of it because the world is moving in this direction
- On the ChatGPT homepage it gives warning that it can be incorrect or biased
- The system is a 'yes man' – be careful the types of questions asked; be sure to ask both sides as it will render different results
- Other organizations are using GitHub which is similar; to use it properly you need to understand the fundamentals of how it works to ensure you're getting the right answer (not just any answer)

- With respect to AI, statistics are important – if you don't understand statistics then you will not understand how they get the algorithms and neural networks work
- At TD Bank ChatGPT is blocked; currently small pilot projects only
- Examples of companies who are training ChatGPT on their docs and APIs and redirecting community and partner developers to ask the bot for integration support and code examples instead of their staff providing support

Recommendation(s):

- Review curriculum to embed the topic of ChatGPT and AI, as appropriate. A focus for the content should be on the fundamentals of how it works, when it can be applied, and the pros and cons to using it.

Are you using Python in your organization and if so, how much? Would having a course on it support our students in gaining employment?

- Sagacity – yes using Python, enterprise IoT system; python is one of the languages used (useful skill for employment)
- Joydrop – not using python, use C++ and C# (due to nature of the work Python is not needed)
- LBMX – yes using Python, use it for machine learning (predominantly used in ML space)

Recommendation(s):

- Continue to monitor the use of Python within the industry and embed into curriculum, as appropriate.

What alternative databases are being utilized in your companies?

- Alternative databases meaning non-relational, non-SQL
- Students need awareness of these topics on what is out there, what fits for workloads and industry, and how to find more information as things change so rapidly
- The following databases were mentioned:
 - Azure Cosmos DB
 - MongoDB
 - AWS
 - Dynamo DB
 - Google cloud services; Firebase DB (for Google users)
 - CockroachDB is used for some docker app stacks
 - PostgreSQL (like Oracle, but open source)
 - TimescaleDB (inexpensive, but powerful for analytical work)
- Relational is not going anywhere as SQL is fundamental; will always be important
- Consider a course about non-SQL – why they exist and the different options, the value of each one (not focused too closely on any one database in particular)
- Consider bringing in PAC members to a classroom visit (live or virtual) to provide students with various perspectives on the different DB's and their opinions (relational versus non-relational)

Recommendation(s):

- Consider a course about non-SQL with a focus on why they exist and the applications of each within industry.
- Consider planning guest speaker series for industry professionals to discuss relational versus non-relational with various perspectives on their importance.

How can we better prepare our graduates to be EDI (Equity, Diversity and Inclusion) prepared for the work environment? Are there specific skills that you would like covered in their education?

- TD – this is currently a big topic organizationally; bring the whole self to work; embedded in the work environment
- Transition from know it all, to learn it all
- Encouraging collaboration, experimentation, design thinking
- Encourage students that it's okay to be yourself
- Embedded in corporate culture – it's important in higher learning; it can live within ethics courses, how to work together, embracing the value that everyone brings to the table

Our CPA program is also offered in a part-time, online format targeted at mature, working learners. Would you expect an interest in an Essentials Series or Microcredentials - for those who want to expand or update their skills, or enter into this field? What topic areas would be a must to cover?

- Noted the importance for microcredentials being aligned with certifications for companies
- Pluralsite – is asynchronous and provides similar services; Fanshawe being instructor lead would be a benefit
- The following microcredential topics were suggested:
 - Reporting (e.g., PowerBI); understanding the capabilities, how to use it, and reporting tools at end of project
 - Unreal Engine would be an asset for engine developers in gaming (<https://www.unrealengine.com/en-US/training-partners-apply>)
 - Note for GDP, content in INFO-3120, Programming Commercial Game Engines currently uses Unity, but content could be updated to include Unreal Engine
 - Foundational math skills for those entering gaming (e.g. algebra and vectors)
 - Cyber security
 - System architecture; engineering discipline for pentest, performance engineering; monitoring and calculating site traffic
 - Different code patterns (e.g., factory pattern); focus on configurable patterns (how to code less, but with more applications)
 - For Web3 - JS and Solidity, blockchain

Recommendation(s):

- Consider developing microcredentials in the following topics with a focus on aligning with industry certifications.
 - Reporting, PowerBI
 - Unreal Engine
 - Foundational math skills
 - Cyber security
 - System architecture
 - Different code patterns (e.g., factory pattern)

How can we improve the promotion of our programs? Did you know about these programs before this meeting? If yes, how?

- Many heard about the program by word of mouth
- Good reputation – strong knowledge that students get jobs

- Students who take the program get results
- Reach out to high schools for demo days and hackathons; get students interested when they are young (e.g., grade 11-12)
- International students like the co-op to get experience working
- Cardinal Entertainment Inc. noted having difficulty with the co-op portal – Amelia Ertel to provide contact information
- Raising awareness in game jams hosted in other communities outside London (especially for GDP)
- Girls Rock IT – promote women in the industry
- Showcase for student success and stories; put a face and story to former students and their successes

Recommendation(s):

- Consider showcasing student successes and personal stories of former students as a recruitment tool.
- Consider hosting or sponsoring hackathons or game jams within London and elsewhere to raise program awareness.

Meeting Adjournment

The meeting adjourned at 7:52 pm.