Workshop Tracks for CS Faculty Development

This workshop is designed for Computer Science faculty to explore emerging practices beyond conventional curriculum. Below are the proposed tracks, including themes that respond to current educational and technological shifts.

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1. Engaging Gen Z Learners: Pedagogies for the Digital Age

Overview: This track focuses on understanding the learning behaviors and preferences of Gen Z students and tailoring CS instruction accordingly.

Topics:

- Active learning and flipped classroom techniques
- Gamification and game-based learning in CS
- Microlearning and short-form content strategies
- Use of memes, and storytelling in CS concepts
- Digital well-being and screen-time management

Format: Talks, group activities, demos, hands-on co-design sessions

Formats available: 1, 2, and 5 day formats available

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2. Getting Started with Research: For Non-PhDs and Early Researchers

Overview: A practical guide to entering the research world for CS faculty without a PhD or those currently pursuing one.

Topics:

- Identifying researchable problems in classroom practice and tech
- Writing abstracts, proposals, and small grants
- Using tools: Zotero, Mendeley, Notion, Overleaf, LaTeX, RQ generators
- Basics of academic writing and publishing
- Finding collaborators and mentors
- Grants and more

Format: Workshops, writing clinics, tool walkthroughs

Formats available: 1 and 2 day formats available

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3. AI Tools Deep Dive: Hands-on with Generative AI and Beyond

Overview: Explore hands-on uses of AI tools for teaching, coding, grading, and research.

Topics:

- Generative AI tools (35+ hands-on tools)
- AutoML and teaching ML with low-code platforms
- Creating AI-powered teaching assistants
- Using AI for feedback, grading and personalization

Format: Tool labs, case studies, sandbox sessions

Formats available: 1, 2 and 5 days formats available

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4. Inclusive Education in CS: Accessibility and Universal Design

Overview: Addressing inclusivity and accessibility in computer science classrooms. Remember that the Right to Disabilities Act mandates providing support for students with disabilities.

Topics:

- WCAG and accessibility audits for teaching materials
- Tools like screen readers, accessible IDEs, and captioning tools
- Neurodiversity-aware CS instruction
- Designing inclusive group work and assessments
- Case studies of accessible CS courses

Format: Hands-on testing, inclusive design challenges, accessibility walkthroughs

Formats available: 1 and 2 days formats available

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5. Learning Analytics for Learning Outcomes Tracking

Overview: Leveraging learning analytics to track and improve Learning Outcomes (LO) achievement in computer science education. Understanding how data-driven insights can enhance student success

while maintaining privacy and ethical standards in educational technology.

Topics:

- LO mapping and alignment with assessment data
- Learning Management System (LMS) analytics and dashboard creation
- Predictive modeling for at-risk student identification
- Real-time feedback systems and adaptive learning pathways
- Code analysis tools for programming skill assessment
- Privacy-compliant data collection and FERPA considerations
- Interpreting engagement metrics and learning behavior patterns
- Case studies of successful LO tracking implementations in CS programs

Format: Interactive data analysis workshops, LMS configuration sessions, dashboard creation exercises

Formats available: 1 and 2 days formats available

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6. Teaching Ethics, Fairness, and Sustainability in Tech

Overview: Integrating ethical thinking and sustainable practices into CS courses.

Topics:

- Algorithmic fairness and ethical dilemmas in AI
- Teaching data privacy and cybersecurity ethics
- Environmental impact of computing
- Frameworks like Responsible AI, Tech for Good

Format: Scenario-based discussion, design-thinking for ethics, mini-hackathons

Formats available: 1 day format only

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7. Creative Coding & Computational Thinking for All

Overview: Introducing non-traditional, artistic, and problem-solving approaches to CS.

Topics:

- Creative coding with Processing, p5.js, Sonic Pi
- CS Unplugged and low-cost hardware (e.g., Micro:bit)
- Visual and block-based languages for intro CS
- Transdisciplinary projects (CS + music/art/science)

Format: Maker labs, exhibition-driven learning, story coding

Formats available: 1 day format only

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8. Mentoring & Career Planning for Students in CS

Overview: Equipping faculty with strategies to guide students in academic and industry pathways.

Topics:

- Mentorship models: peer, near-peer, industry
- Research internships and fellowship pipelines
- Building student portfolios and personal brands
- Supporting underrepresented groups in CS careers

Format: Panel discussions, role-play, resource mapping

Formats available: 1 day format only
