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Workshop: Succeeding in the Start-up Ecosystem

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Proposal Summary

This workshop aims to guide cognitive science PhD students on starting a company within the start-up ecosystem, with an emphasis on how to use venture capital (VC). It will cover essential concepts, stages, decision points, and skills needed to improve chances for success. The workshop will also compare VC funding phases with those in academic research to make the concepts and processes more accessible.

This workshop will begin by helping students calibrate their motivations and timelines for creating a startup company or joining one. After a review of the typical startup lifecycle by a venture capitalist, three startup founders will explain their career trajectories and critical decision points. They will then introduce important decisions about product, market, software, and funding strategies. Students will then participate in breakout sessions in one of these four areas. After the breakout sessions, the workshop will conclude with open discussion with the presenters.

Resources for this workshop will be available at an auxiliary website: bit.ly/cogsci2025

Why This Workshop?

In recent years there has been a steady increase in interest among cognitive science PhD students in industry and entrepreneurial career paths. Some of these students are pursuing their degrees in universities or research labs where they can receive mentorship and support for their non-

academic aspirations, but most are not. This workshop will give this latter group the guidance they need to start a company and to improve their chances of success.

Why Now?

It has been just over two years since the emergence of ChatGPT and other large language models (LLMs) catalyzed an explosion of interest in AI in both academic and industry contexts. Many foundational technologies in machine learning (ML), such as neural networks, transformers, and large language models (LLMs), are now widely accessible. Technical implementation is increasingly "commoditized," with pre-trained models, APIs, and libraries reducing the need for extensive technical expertise to build AI systems. While technical skills remain important for execution, the maturity of ML and LLM technologies has highlighted the importance of theoretical knowledge from cognitive science, especially in identifying innovative applications and designing human-centered AI systems.

Competitive advantage often derives from the effective application of these technologies to solve real-world problems in areas where understanding human behavior and language is crucial. These domains are idea-intensive, involve complex decision-making, and rely heavily on text processing. Examples include legal contracting and compliance, scientific literature analysis and review, insurance underwriting, healthcare and medical decision support, personalized education, and organizational decision making.

Put more simply, there might never be a better time for a cognitive science PhD student with entrepreneurial ambition to start a company.

Why Us?

We collectively have extensive experience with startups and especially the venture capital ecosystem from complementary perspectives. We will listen carefully and provide actionable advice to attendees about ways they can succeed and about ways they might fail, with specific focus on what it means to build a cognitive science startup.

Key Concepts, Decisions, and Skills for Success with a Start-up Company

Refining Your Start-up Idea

What problem are you solving and what is the “job to be done.” What is your competitive value proposition? Will your solution scale to create a company worth investing in?

Alternative Ways to Fund a Startup

The pros and cons of self-funding, loans, SBIR and similar grants, corporate partnerships, and venture capital.

Incubators, Accelerators, and Founder Networks

How Y Combinator, Techstars, Antler Academy and similar entities can help you develop your ideas and find mentors, partners, and funding sources.

Financial Modeling and Valuation

How much money do you need, what will you need it for, and when will you need it? How much dilution to expect?

Pitching a VC or other Funders

What information VCs or other funders need to perform “due diligence” and how should you organize this in a pitch?

Negotiation and term Sheets

The language of deals: liquidation preference; anti-dilution protection; preferred vs common stock; pre and post money valuation; right of first refusal, SAFE vs convertible note.

The Stages of Venture Capital Funding

Venture Capital (VC) is funding provided by investors to early-stage, high-potential start-ups in exchange for equity (ownership shares in the company). There are now many VC firms that invest primarily in AI.

Pre-Seed

Purpose: Help founders develop the idea, build a prototype, or validate initial assumptions.

Source: Friends, family, angel investors (individuals investing personal money), or VC firms specializing in pre-seed investments.

Analogy: Like getting a small academic grant to pilot an experiment.

Seed Funding

Purpose: Develop a Minimum Viable Product (MVP), test product-market fit, and build a small team.

Source: Seed funds or angel investors.

Analogy: Securing funding for a preliminary study.

Series A

Purpose: Scale the business (e.g., expand the team, marketing efforts, or infrastructure).

Source: Venture capital firms (formal funds investing pooled money from various investors).

Analogy: Getting funding for a large-scale study after publishing promising pilot results.

Series B, C, and Exit (IPO or Acquisition)

Purpose: Continue scaling and solidifying market presence (e.g., entering new markets or launching new products), and providing returns to investors.

Analogy: Getting major funding to run long-term research program or licensing your research to a major corporation.

Strategic Decisions for AI Startups

AI startup companies face more complicated strategic decisions than traditional software startups because AI shifts the value proposition, customer experience, and development process.

Product Strategy

Is the product AI-native or AI-enhanced? Because general-purpose AI is dominated by big players, will you target a vertical domain where domain-specific tuning adds clear value? Where is the boundary between automaton and augmentation?

Market Strategy

Is your customer segment technical users, business users, or regulated professionals? Is your pricing usage-based, subscription-based, or per-user? How can you differentiate yourself from other startups using the same APIs? Do you geo-restrict any capabilities because of AI regulation concerns?

Software Strategy

Do you use foundation model APIs, fine-tune open-source models, or train a custom model? How do you obtain and prepare training data? Will you monitor outputs for quality assurance? Will your model/product continually learn?

References

There is an overwhelming amount of often-conflicting advice about how to navigate the start-up ecosystem. We recommend these sources.

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