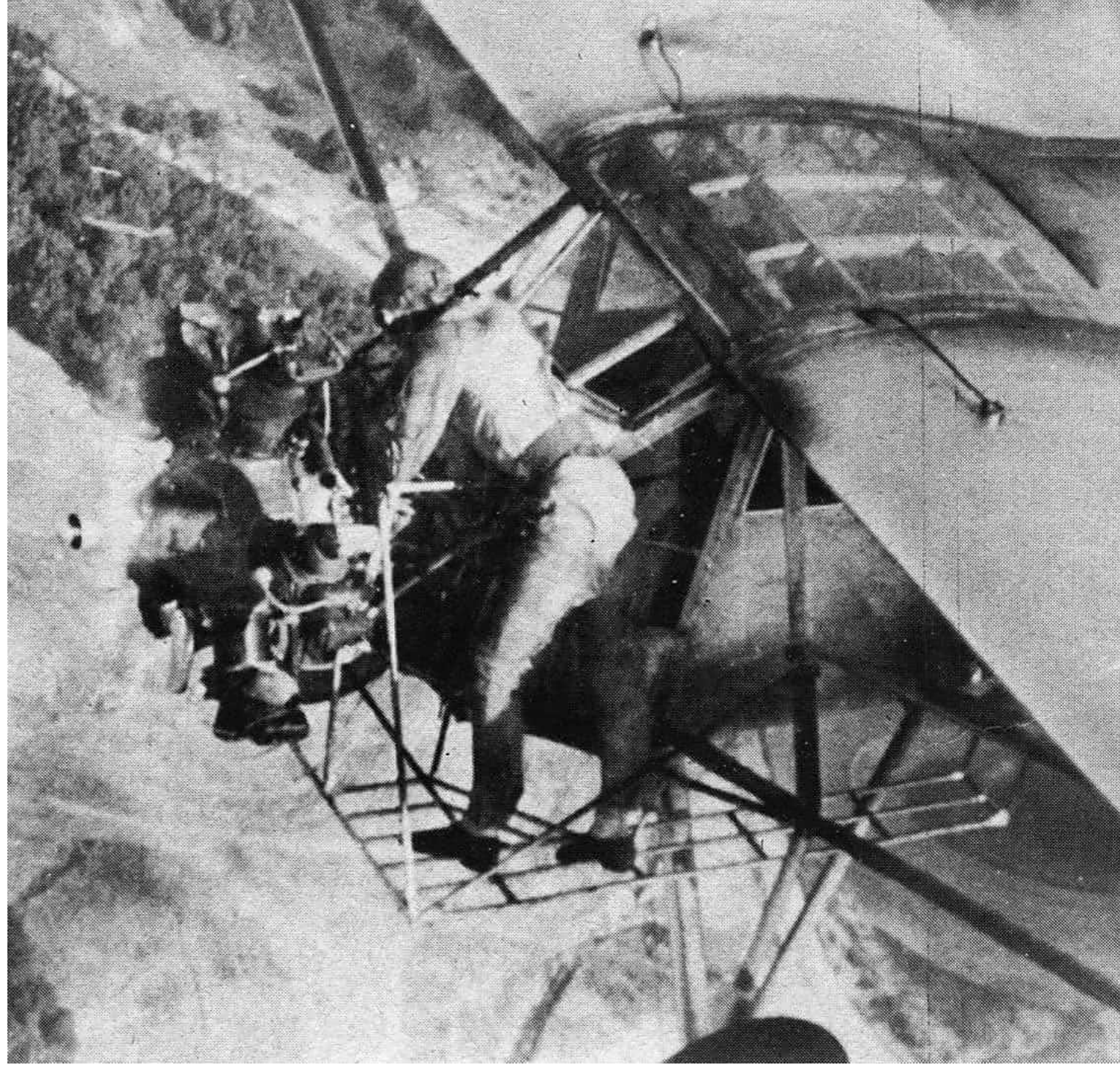


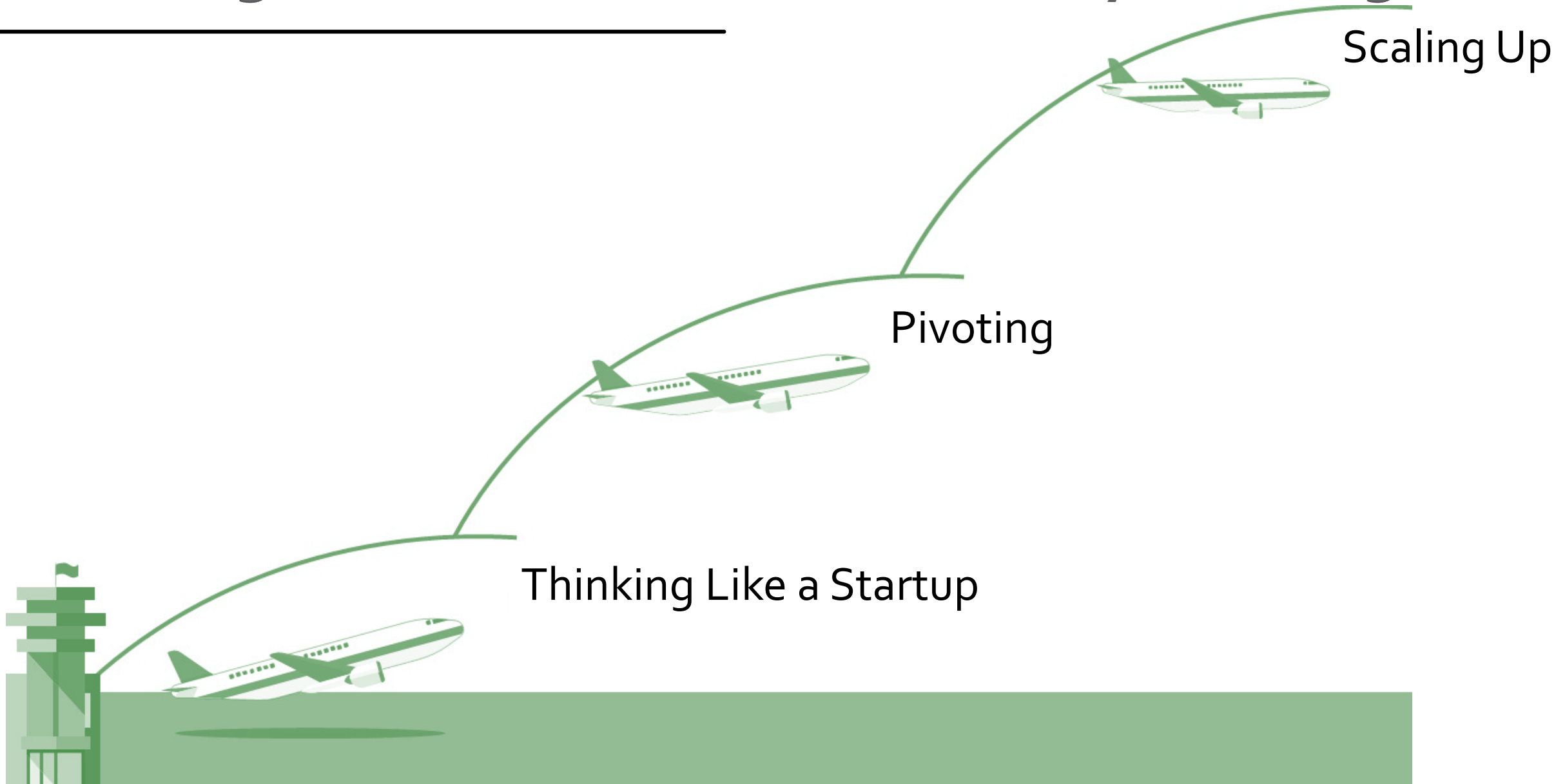
2019 ATGS Conference

Scaling Up Programs

Michael Monticino
Chair, Advanced Data
Analytics
University of North Texas



Building UNT's Advanced Data Analytics Program



Think Different – Core Startup Philosophies

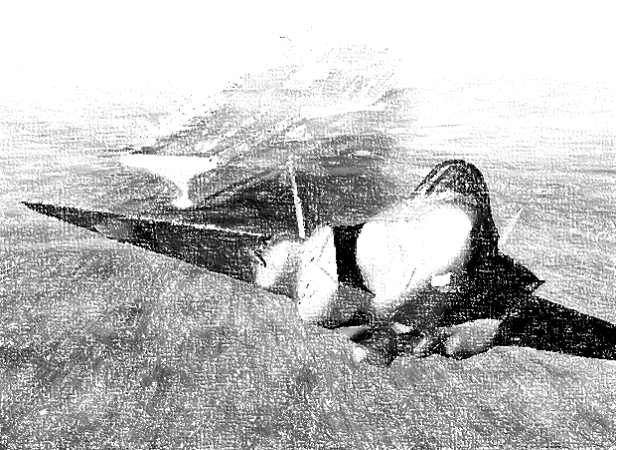
- Problem solving
- Focus on the possibilities
- Disregard the status quo
- Conquer fear
- Speed





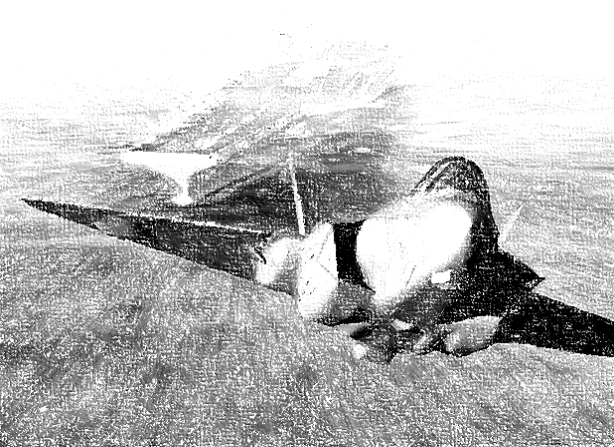
Think Different – Core Startup Philosophies

- Problem solving
- Focus on the possibilities
- Disregard the status quo
- Conquer fear
- Speed
- Entrepreneurs are inherent problem solvers with an insatiable drive for finding a better way
- We saw a market gap for an analytics program with a strong emphasis on contemporary analysis methods, connected to regional businesses, and unburdened by legacy structures



Think Different – Core Startup Philosophies

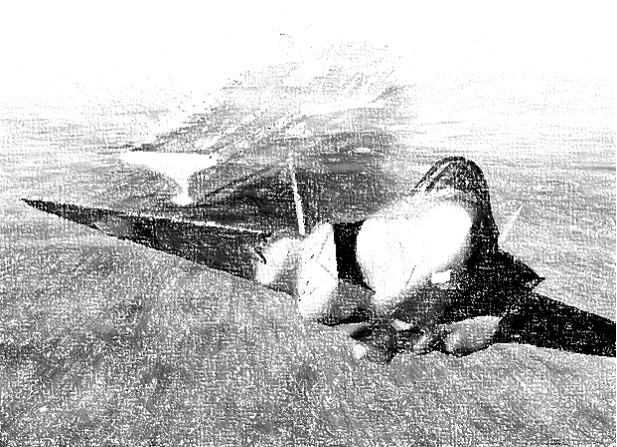
- Problem solving
 - Focus on the possibilities
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 - Speed
- Entrepreneurs focus on what could be, rather than on what is. They are constantly scanning for the paths to the goal, rather than being mired in the obstacles
 - Our goal was to get the program launched, taking advantage of evolving opportunities
 - Leveraged plans for new Frisco campus
 - Avoided a long “build” by initially using an existing INSD program in the graduate school
 - Secured seed funding through university enrollment initiative to hire founding faculty
 - Utilized leadership environment





Think Different – Core Startup Philosophies

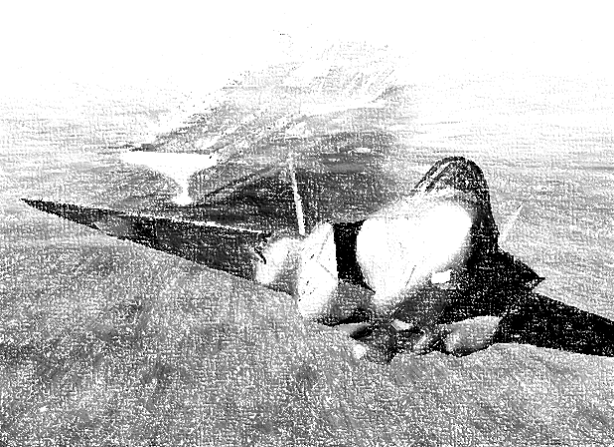
- Problem solving
 - Focus on the possibilities
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 - Speed
- Since entrepreneurs are on the outside, they don't have to appease internal groups. And, they get to delight in disregarding the complacent incumbents
 - By launching the program from the graduate school
 - We could design the curriculum from scratch
 - Make targeted hires for the program
 - Move swiftly through the approval process
 - Though not completely without compromises along the way, we went from conception to hiring to program approval to admitting students to first semester classes in under 9 months





Think Different – Core Startup Philosophies

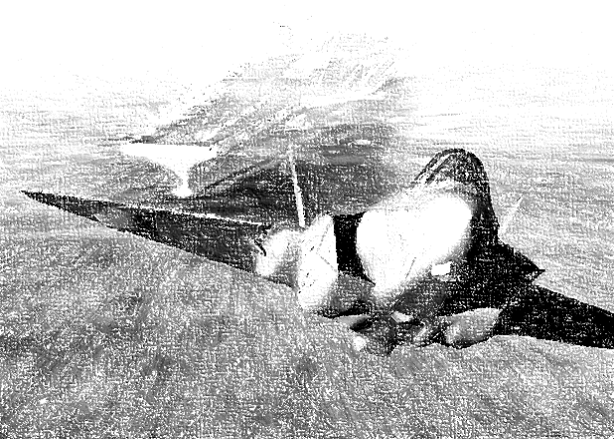
- Problem solving
- Focus on the possibilities
- Disregard the status quo
- Conquer fear
- Speed
- Entrepreneurs forge ahead, acting instead of wavering. “The price of discipline is always less than the pain of regret.”
- We were launching a program in record time
 - With only two full time faculty
 - Developing courses concurrently for online and F2F
 - Creating the next semester’s courses while teaching what we had just developed
 - Testing schedules as we went
- What could go wrong?!



Think Different – Core Startup Philosophies

- Problem solving
- Focus on the possibilities
- Disregard the status quo
- Conquer fear
- Speed

- Startups use speed to their advantage. They sprint toward their goals while big companies are busy writing strategic plans and planning the next meeting
- Launched quickly and have grown rapidly
 - Began with 11 admitted students and currently is one of the largest graduate programs on campus!
 - Developed and delivered 10 new online & F2F courses – 7 within the first year and 3 additional courses in second year
 - Serving multiple departments with cross-listed courses because of moving quickly to meet student needs
 - Admit students throughout the year, rapidly and substantively responding to all inquiries
- All online courses are offered at least once each long semester and all F2F courses are offered each academic year
 - Concurrently running 16 week F2F and 8 week online classes
 - Always an entry point for new admits each 8 weeks online and each 16 weeks F2F



Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
 - Need to define differences for students and administration

Core Competencies



Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
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Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
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COI – Data Science

Comprehensive experience in collecting, storing, retrieving and protecting information in organizations to create and maintain effective knowledge management systems.



Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
 - Need to define differences for students and administration

COB – Business Analytics

Solid understanding of business requirements with focus on analysis for applications in marketing, product development, pricing, forecasting, and business operations.



Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
 - Need to define differences for students and administration



Advanced Data Analytics

Deep understanding of statistical theories with the ability to apply, adapt and develop sophisticated data analysis methods in a variety of settings to derive actionable business insights.

Pivoting

- Differentiation
 - Other related programs have started at UNT and around the region
 - Need to define differences for students and administration
 - Ensure value-add
 - Industry engagement
 - Student focus
 - Responding to industry trends



2019 UNT AI & Data Science Summit

Keynote Presenters



Opening Keynote: The Acceleration of Everything – Promises and Pitfalls of AI

Dave Copps, CEO, Hypergiant Sensory Sciences

Dave Copps is an internationally recognized technologist and visionary on the role that emerging technologies play in transforming markets and the world. As a technologist, entrepreneur and CEO, he has launched and sold two companies focused on machine learning and artificial intelligence. In 2017, Dave was recognized as Emerging Company CEO of the Year in Texas. Prior to co-founding and leading Hypergiant Sensory Sciences, Dave served as CEO of Brainspace, a company he founded, that pioneered the area of Augmented Intelligence focused on radically altering the effectiveness of people through their interaction with AI. Prior to Brainspace, Dave founded Engenium Corp. where he led the adoption of the company's semantic search platform. He is an invited member of the Aspen Institute's Roundtable on AI, a frequent speaker at MIT's EmTech conferences and other events centered around machine learning, AI and the future of technology. Dave received his bachelor's degree from UNT in Industrial Anthropology/Corporate Culture.



Luncheon Keynote: The Evolution of Automated Analytics and How to Avoid Extinction

Tuell Green, Managing Director, Operations Research & Advanced Analytics, American Airlines

Tuell Green is the managing director of the Operations Research and Advanced Analytics group at American Airlines. He has 20 years of experience using advanced analytics techniques to solve business problems and improve decision making at AA. Tuell has provided support to a number of business areas during this time, including technical operations, customer dependability, airport planning and operations, crew planning and scheduling, operations control, flight and flight service. He is named on 10 US patents issued to American Airlines for the novel and innovative work accomplished by his teams. Tuell's current responsibilities include leading AA's Center for Machine Learning and AI, a Center of Excellence focused on helping AA achieve its full potential in applying machine learning and artificial intelligence to improve decision making. Tuell earned his master's and doctoral degrees in Operations Research from the University of North Carolina at Chapel Hill.

Closing Keynote: How AI is Transforming Telecom Operations and AI & Data Science Summit Reflections

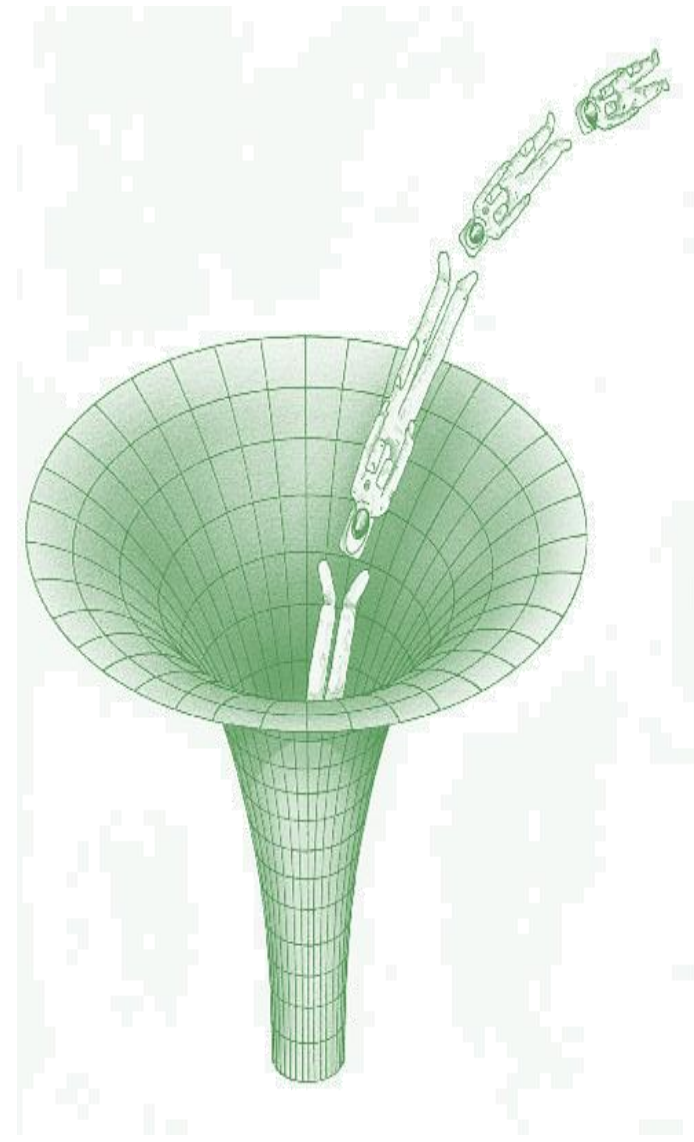
Ulrika Jägare, Head of AI/ML Strategy, Ericsson North America



As Head of AI/ML Strategy Execution at Ericsson Market Area North America, Ulrika Jägare sets and drives the strategic direction in AI/ML, secures operational alignment, and engages with customers and industry stakeholders. In her previous role as Director of Technology and Architecture at the CTO office, Ulrika was driving the strategic direction of the use of Data and AI/ML throughout the Ericsson Group. This included securing alignment cross business areas, market areas and Ericsson research in data architecture, commercial models, legal aspects of data usage, vendor/partnerships, open source engagements, standardization, and internal analytics. Ulrika holds a master's degree from the University of Lund, Sweden and is the author of three books in data science – *Data Science Strategy for Dummies*, *Unified Analytics for Dummies* and *Embedded Machine Learning Design for Dummies*.

Pivoting

- Partnerships – with options
 - Developed reciprocal concentration options with several programs
 - ADTA students can pursue Management, Healthcare Analytics, Sport Analytics, Statistics, and other concentrations consisting of 4 subject area courses
 - Emerged that having a solely within-ADTA option is important to allowing timely degree completion
- Gravitational pull against staying lean and agile
 - Originally focused on only offering F2F courses at Frisco campus
 - Growing interest and motivation for expanding footprint to Denton, requiring applying technology solutions and hiring additional faculty
 - Enhancing main campus profile is useful, but poses legacy challenges



Pivoting



- Keeping up
 - Analytics field moves incredibly fast and ensuring that curriculum keeps pace with industry is a constant effort
 - Requires not being scared to jettison material and rapidly add new topics and courses
 - ADTA helps sustain an industry perspective by
 - Utilizing knowledgeable professionals as adjunct faculty
 - Engaging in regular conversations with industry leaders
 - Incorporating industry-based course & capstone projects



Scaling Up

- ADTA program is posed to enter next stage of scaling up enrollment
 - Hired new faculty
 - Coordinated recruitment
 - Direct marketing
 - International
 - Enhancing online presence
- Double by 2020, then double again by 2021



Scaling Up – Challenges

- Sustaining differentiating features
 - Student service
 - Industry networking experiences
- Adjusting course content and assessment for (very) large classes
 - Ensuring high quality, well prepared graduates
 - Balancing F2F and online experiences
- Maintaining startup culture ... or not





Questions?

Michael. Monticino@unt.edu