

AI SOLUTIONS HUB

From AI ideas to working solutions

SERVICES & SOLUTIONS CATALOG
FOR ORGANIZATIONS

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Move From AI Ideas to Working Solutions

RESEARCH DEPTH. PRACTICAL DELIVERY.

The AI Solutions Hub at The Institute for Experiential AI helps organizations identify valuable AI opportunities, build and test custom solutions, and prepare them for real-world deployment. Our solutions are practical, scalable, and built on Responsible AI principles, and they can be deployed on-premise or in the cloud.

→ BRING US

- An operational challenge
- A promising use case
- A prototype that needs direction
- A portfolio of AI opportunities

→ WHY NORTHEASTERN

- **Breadth:** multidisciplinary experts on call
- **Speed:** hands-on builders and co-ops
- **Longevity:** knowledge transfer and upskilling so your team can evolve and own the work

→ AN ENGAGEMENT CAN DELIVER

Prioritized roadmap

Opportunities assessed for value, feasibility, data readiness, and risk.

Working prototype

A solution stakeholders can test with real workflows and data.

Path to deployment

Technical direction, responsible AI practices, and knowledge transfer.

“Working with Northeastern’s Institute for Experiential AI gave us the level of rigor and depth we needed to validate a completely new diagnostic modality. The collaboration went far beyond model training. It shaped how we think about robustness, scalability, and regulatory readiness.”

Sergio Schirmer Almenara Ribeiro, Founder & CEO, Radiolife

Ways to Work With Us

Engagements do not have to follow every stage. We start with the level of support your opportunity requires.

	ROADMAP + SCOPE Find the right opportunity	FDE Test + prototype	BUILD + DEPLOY Production solutions
What we do	Assess business challenges and AI opportunities to determine where AI creates value and what to prioritize.	Investigate a defined workflow or use case and create a prototype stakeholders can evaluate before a larger build.	Design, engineer, and integrate custom AI around your workflows, users, data, and security requirements.
What you get	A prioritized roadmap and a clear definition of what a solution would require	A requirements document, recommended technical approach, or testable non-production prototype	A solution built to operate in your real environment, plus knowledge transfer
Choose this if...	You have a portfolio of ideas, or a challenge, and need to know where to focus.	You want to clarify requirements or test feasibility before funding a full build.	You need a production-ready application, or an existing prototype moved toward production.
Details	Page 5	Page 6	Page 7

Every engagement can pair with [custom learning](#) to build your team's skills alongside the solution. Looking for something faster? See our [ready-to-run engagements](#).

Roadmap + Scope

FIND THE RIGHT OPPORTUNITY

Not every AI idea deserves a build. We assess your business challenges and AI opportunities to determine where AI can create value, what should be prioritized, and what a solution would require. Then we help you define it well enough to act.

→ HOW WE ASSESS OPPORTUNITIES

Value	Feasibility	Data readiness	Risk
What the opportunity is worth to the business.	Whether it can be built, and what it would take.	Whether the data exists, and in what shape.	What could go wrong, and how to manage it.

→ ROADMAPS WE HAVE DELIVERED

A state news organization

A structured AI and data opportunity roadmap prioritizing use cases across content, audience engagement, advertising, and operations.

A promotional products supplier

Executive AI training combined with stakeholder discovery, producing a ranked portfolio of AI and analytics initiatives aligned to business strategy.

A healthcare technology company

A multi-phase roadmap identifying, prioritizing, and planning high-impact AI initiatives aligned with operational goals.

IDEAL FOR

Organizations with an operational challenge or a portfolio of AI ideas that need a defensible place to start.

THE OUTPUT

A prioritized roadmap and a scoped next step.

Forward-Deployed Engineers

TEST + PROTOTYPE A DEFINED WORKFLOW

FDE is a focused engagement for a defined workflow or use case that would benefit from technical discovery, scoping, or prototyping. An AI Solutions Hub technical lead oversees the work, while two certified Northeastern graduate students provide hands-on technical capacity.

What counts as a defined workflow? A specific, repeatable process with a clear owner, such as triaging intake requests. No formal process map required.

MATCH THE WORK TO WHAT YOU NEED TO LEARN

01 Investigate

Examine users, current process, data, pain points, and dependencies.

Output: a clearer definition of the opportunity and recommended next step.

02 Scope

Define requirements, data, risks, and technical feasibility.

Output: an actionable requirements document and technical approach.

03 Prototype

Build a working demonstration your team can test and react to.

Output: a testable, non-production prototype.



EXAMPLE WORKFLOWS

- Research, matching, and qualification
- Industry-specific AI assistants and agents
- Contract and document intelligence
- Data synchronization and transition
- Reporting and dashboards
- Ticket, claim, or intake triage
- Internal knowledge search and summarization
- Sales follow-up and CRM workflows



FDE IS A GOOD FIT WHEN

- You have a defined workflow worth investigating
- You want to test feasibility before funding a larger build
- You can provide process knowledge and representative or sample data
- Your team can join regular check-ins and give feedback

How FDE works: FDE is a paid, scoped engagement led by the AI Solutions Hub. You contract with Northeastern for defined outputs, delivered by an AISH technical lead and Northeastern graduate students. FDE prototypes are designed to test an idea and inform next steps, not to serve as production-ready applications.

Build + Deploy

CUSTOM AI SOLUTIONS IN YOUR REAL ENVIRONMENT

We design and develop AI applications around your workflows, users, data, security requirements, and technology environment. Already have a prototype? We strengthen it through engineering, integration, testing, deployment planning, and MLOps.

A CLEAR PATH FROM CHALLENGE TO CAPABILITY				
01 Discover Define the challenge, users, outcomes, data, constraints, and success measures.	02 Design Assess feasibility and create the technical, responsible AI, and delivery approach.	03 Build Develop and test iteratively with input from your team and end users.	04 Deploy Prepare for your infrastructure, integrations, governance, and security.	05 Sustain Transfer knowledge so your team can maintain, use, and extend the work.

→ PROTOTYPE OR PRODUCTION?

	FDE PROTOTYPE	BUILD + DEPLOY
Purpose	Test an idea and inform next steps	Operate reliably in your real environment
Data	Representative or sample data	Sensitive or production data
Systems	Standalone demonstration	Integrated with live production systems
Security + governance	Scoped for evaluation	Built to your security and governance requirements
Ownership	Your team evaluates and decides	Deployed, documented, and handed off for your team to maintain

Deployment: cloud, on-premise, or both, built to fit your infrastructure and security model. The result is AI that works now and builds capacity for later.

Pair the Solution With Your People

AI SOLUTIONS HUB + NORTHEASTERN CUSTOM LEARNING

A solution only creates value if people use it well. Northeastern's custom learning team delivers live, expert-led programs built around your team's roles and taught in the tools they already use, so capability grows alongside the technology.

IF YOUR AISH WORK IS...	PAIR IT WITH CUSTOM LEARNING
Roadmap + Scope Leaders deciding where AI fits	AI Strategy pathway Essential AI for Leaders, Identifying AI Opportunities, Evaluating AI Opportunities
FDE or Build + Deploy Teams adopting a new AI tool in their workflow	AI Enablement pathway Maximizing Productivity with Generative AI, Turning Your LLM Into Your Work Assistant
A data-heavy build Data readiness is the constraint	Data courses Developing an Organizational Data Strategy, Cultivating Data-Driven Decision Making
Technical handoff Your engineers will own and extend the work	Technical courses Building Predictive and Prescriptive AI Data Models, Maximizing Productivity with GitHub Copilot
Any solution touching risk Governance and oversight need to keep pace	Responsible AI Establishing RAI Governance and Data Ethics, plus Northeastern's Responsible AI Practice

PROOF: BANGOR SAVINGS BANK

A two-year initiative combined workforce assessment and development with a data opportunity roadmap and a custom recommendation engine built with the AI Solutions Hub. **96% of program participants now use generative AI in their daily work, up from 56% before training.**

Explore custom learning → ai.northeastern.edu/education

What We Build

AI BUILT AROUND REAL WORK

01

Knowledge + document intelligence

Extract, classify, summarize, search, and reason across contracts, reports, policies, transcripts, and other unstructured information.

02

Prediction + decision support

Use historical and real-time data to forecast demand, assess risk, prioritize work, and support better operational decisions.

03

Workflow automation

Reduce repetitive work with AI-enabled intake, routing, grading, scheduling, reporting, and human-in-the-loop review.

04

Custom AI applications

Build secure assistants, conversational interfaces, analytical tools, and full-stack applications designed for your organization.



SOLUTIONS INCLUDE

AI for Operations

Document Processing
Time Series
Forecasting
AI Agents for
Automation

AI for Marketing

Chatbots & AI
Assistants
Recommendation
Systems
Next-Best Product &
Churn Models

AI for Risk & Compliance

Credit & Risk Scoring
Fraud Detection
Compliance
Monitoring

AI for Innovation

Generative AI
Applications
AI Copilots
Multi-Modal AI (text,
image, voice, video)

Custom AI Solutions

Bespoke Models
Hybrid Predictive +
Generative AI

CORE CAPABILITIES

Generative AI

Predictive AI

Large Language Models

AI Agents

AI Opportunity Roadmaps

Experiential AI Upskilling

End-to-End Solution Delivery

Cloud Deployment

Ready-to-Run Engagements

PROVEN WORK, PACKAGED FOR SPEED

AUTOMATED PORTFOLIO REPORTING

Reporting that runs on systems, not people. First built for a property management organization overseeing approximately 30,000 housing units, this modular platform brings fragmented financial, operational, and document data together, automates recurring reporting, and answers plain-English questions with verifiable sources.

Collect	Standardize	Report	Ask
Gather documents and records from approved systems on a schedule	Extract, check, and reconcile data into one trusted model	Dashboards, report packs, variance explanations, and alerts	Plain-English questions, traced back to their sources

Start where the work is most manual: document intelligence, then workflow automation, then a conversational layer. Every extracted field points back to its source, so teams can check the system's work instead of taking it on faith.

See the full solution → ai.northeastern.edu/example-solution-automated-portfolio-reporting

UNDERWRITING AUTOMATION + RISK TRIAGE

Fewer manual reviews, sharper risk detection. Built from work with an insurance carrier, this two-part solution reduces labor-intensive underwriting review while preserving or improving the ability to catch risk.

AUTOMATED DOCUMENT VALIDATION

- OCR, NLP, and LLM extraction across many policy document types
- Extracted values checked against internal records, with mismatches and anomalies flagged

UNDERWRITING RISK MODEL

- Classifies applications by risk level and type using internal and third-party data
- Routes the policies most in need of human review, reducing false positives

Responsible by design: built to support alignment with the NAIC Model Bulletin on AI Systems and NYDFS Circular Letter No. 7 (2024), including testing for disproportionate adverse effects. Full code, model documentation, and knowledge transfer so your team owns the solution.

Ready-to-Run Engagements

CONTINUED

PRICING ELASTICITY ANALYSIS

Clarity on which pricing decisions will strengthen your margins. Built from price elasticity modeling with a national retailer, this analysis shows exactly where price increases, holds, and shifts will strengthen performance before your pricing window closes.

WHAT THE ANALYSIS PROVIDES

- **Visibility into demand sensitivity** across products, channels, and customer segments
- **Confident guidance on price actions:** where to raise, hold, and shift to improve margin without eroding trust or volume
- **A repeatable pricing approach** for upcoming cycles and seasonal decisions

2-3 wks

to first insights

4-6 wks

to full guidance

2-5%

estimated margin lift

10-20x
estimated engagement
ROI

AI PORTFOLIO PARTNER FOR PRIVATE EQUITY

From legacy to exit-ready. One embedded AI team helps private equity firms modernize legacy portfolio companies into agile, AI-enabled platforms that attract premium buyers.

Opportunity Mapping

High-impact AI use cases across legacy operations

AI Readiness

Strengths and gaps across tech, data, and people

Custom Solutions

Workflow automation, system upgrades, portfolio tools

Workforce Training

AI fluency for teams in acquired companies

Governance at Scale

Responsible AI guardrails across all investments

Learn more → ai.northeastern.edu/ai-portfolio-partner

Featured Partners

SOLUTIONS MEASURED IN OPERATIONAL IMPACT

FINANCIAL SERVICES

Bangor Savings Bank

AI strategy, workforce learning, and applied projects together, including a product recommendation engine that helps associates offer personalized recommendations at the right moment.

96% daily generative AI use, up from 56%

HEALTHCARE + LIFE SCIENCES

Radiolife

Multiplex AI models for Dengue, Chikungunya, and Oropouche, validated for clinical-grade, regulatory-ready performance on a reagent-free RF platform.

88–90% multiclass accuracy

>0.98 AUROC

30–60 sec scans

OCEAN TECH + ENVIRONMENT

Blue w(AI)ve Accelerator

AI consulting, responsible AI guidance, and technical mentorship helped blue-tech startups turn complex ocean data into deployable applications.

SEMICONDUCTOR MANUFACTURING • SOUTH PORTLAND, MAINE

Diodes U.S. Manufacturing

The challenge: Diodes needed an early-warning system that would help reduce scrap, strengthen process controls, and flag quality control issues as soon as possible.

NORTHEASTERN DELIVERED

- A machine learning discovery process producing a data dictionary, data analysis, and data preparation guide that supported data cleanup and refined algorithm selection
- An unsupervised model serving as a fast, scalable anomaly screen
- Guidance to establish a repeatable foundation for future machine learning use cases

RESULTS + IMPACT

- Expanded internal data engineering capacity and cross-team efficiency
- Reusable machine learning capabilities and a faster path to future AI use cases
- Reusable data dictionary and preparation guides that reduce duplication and knowledge loss

“The Roux’s structured approach helped us strengthen our data foundation and build confidence in applying machine learning to real manufacturing challenges.”

Philip Sampson, IT Manager, Diodes U.S. Manufacturing

Published case studies are available at ai.northeastern.edu/case-studies.

Selected Work Across Industries

REPRESENTATIVE AI SOLUTIONS HUB ENGAGEMENTS

REAL ESTATE

Affordable housing organization

Automated portfolio reporting: RealPage data extraction plus LLMs that turn plain-English questions into SQL, replacing hours of weekly manual Excel work. Now a ready-to-run offering.

INSURANCE

Insurance carrier

Underwriting automation that validates documents and classifies risk, reducing manual intervention and improving fraud detection. Now a ready-to-run offering.

INSURANCE

Insurance provider

Claims complexity scoring and intelligent routing built on historical claims data to improve assignment and risk management.

HEALTHCARE

Oncology organization

Automated extraction of genomic data from testing reports and structured tumor board transcripts to speed clinical decision-making.

INFRASTRUCTURE

Infrastructure firm

A cloud-based invoice processing tool that extracts data from 300+ PDF invoices a week, cutting manual entry for project managers.

PROFESSIONAL SERVICES

Executive search firm

An interview summarization engine using fine-tuned language models and human-in-the-loop feedback for consistent, high-quality summaries.

PROFESSIONAL SERVICES

Global expert network

A machine learning pipeline that predicts research engagement outcomes, enabling faster prioritization and resource allocation.

HEALTH + WELLNESS

Musculoskeletal health startup

A retrieval-augmented generation platform delivering non-clinical insights from scientific literature and expert-curated content.

RETAIL

National retailer

Price elasticity modeling across the assortment to show where pricing power exists, now packaged as a repeatable Pricing Elasticity Analysis.

TECHNOLOGY

Open-source research software

A RAG-based support assistant that answers technical and community questions from forums and documentation.

PUBLIC SECTOR + SOCIAL IMPACT

Justice reform initiative

AI-enabled processing and visualization that turns arrest report data into transparent, interactive analytics for advocacy.

SEE OUR WORK →

Case studies and example solutions

ai.northeastern.edu/ai-solutions-hub

Built Around Your Challenge, Not a Fixed Bench

AI challenges rarely fit neatly into one discipline. Every engagement can draw on expertise from across Northeastern University, so we assemble the team around your technical problem, industry context, research needs, and stage of work.

01 Applied AI professionals AI engineers, data scientists, software developers, and technical delivery expertise.	02 Faculty + researchers Specialized expertise from across Northeastern's research and academic network.	03 Graduate + co-op talent Emerging technical talent that extends capacity and contributes directly to applied work.	04 Domain expertise Relevant knowledge across industries, disciplines, and specialized problem areas.
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→ YOUR CORE TEAM



Omer F. Alis, Ph.D.

Director, AI Solutions Hub

Leads the AI Solutions Hub, connecting organizations with the technical expertise, research capabilities, and talent needed to move AI initiatives forward.



Ali Hager

Program Manager



Sean Martin

Business Development Manager



Prashant Mittal

Northeastern Faculty



Jithin Veeragandham

AI Engineer



Akhil Chitreddy

AI Engineer



Jay Vipin Jajoo

AI Engineer

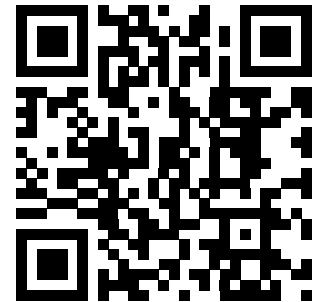
BRING US THE PROBLEM

Start with the need that matters most. We shape the technical approach and engagement around your goals, data, constraints, and internal capabilities.

TALK WITH OUR TEAM →

AiPartnerships@northeastern.edu

ai.northeastern.edu/ai-solutions-hub



FROM RESEARCH TO PRODUCTION

Roadmap, prototype, or full build: start where your opportunity requires, and move to the next stage when you are ready.