To: Professor Wolfe, Liz Walker, Recruitia Jobness
From: Tej Jolly
Date: December 12, 2025
Subject: Justification Memo—Online Engineering Portfolio

Employer target and skill profile
Primary target: teams that run high-consequence modeling workflows where CFD outputs become decisions—energy and climate systems groups; cardiovascular/medical-device and health-tech groups; industrial R&D groups operating simulation-to-insight pipelines. Cross-functional adjacency: product, experimentalists, clinicians, and domain scientists.

Core skills emphasized: (1) high-fidelity CFD and transport modeling; (2) boundary-condition modeling and reduced-order coupling; (3) HPC execution and scaling awareness; (4) automation and reproducible analysis pipelines; (5) quantitative interpretation of results under uncertainty; (6) engineering communication that survives handoff.

Content choices
The portfolio organizes around representative projects spanning cardiovascular CFD, external-flow and environmental CFD, and ML systems work. Each project segment carries: a one-sentence objective, a media artifact, a short skills line, and a collapsible "Details" block. The structure supports two reviewer modes: scan for fit; then click into proof.

Artifacts sit with the relevant project rather than in a separate repository. Poster/report/video links live inside each project card, keeping evidence adjacent to claims and shortening navigation.
A resume PDF link is placed near the top, paired with a "Resume Snapshot" card that previews education, skills, awards, publications, and tools. Fast qualification up front; depth in the projects; resume as the canonical reference.

The projects to be graded for evaluation are (i) *Microvascular Resistance and Coronary Diagnostic Indices*, (ii) *Carotid Bifurcation Angle and Stenosis Influence on Hemodynamics*; (iii) *Decarbonization Building CFD: Reducing Re-Entrained Exhaust*; and (iv) *Presentation on Numerical Diffusion in CFD*. These projects collectively demonstrate model ownership across geometry, numerics, transport, and interpretation, while spanning research, applied design, and communication contexts.

Tailoring to employer demands
CFD employers look for model ownership: geometry-to-mesh-to-solver decisions, boundary conditions, validation posture, and post-processing rigor. Project summaries foreground those elements as actions and outputs—parameter sweeps, controlled variations, WSS quantification, transport proxies, pipeline automation—rather than as broad self-descriptions.

Cross-domain teams look for translation bandwidth. The About section leads with stakeholder interfaces and outcomes, then follows with technical substrate. The project set preserves range without dispersing identity: one throughline (flow physics), multiple contexts (coronary, carotid, built environment, ML).

Layout and aesthetic decisions
Single-page architecture with sticky navigation reduces friction and supports fast scanning. Active-section highlighting turns scroll position into orientation without adding text.

A card-based layout and restrained accent palette maintain hierarchy: title; objective; artifact; details. Captions convert media into evidence. Accordion details preserve an executive summary while keeping technical depth available. Accessibility features are treated as baseline document design: skip link, semantic sectioning, and responsive behavior for small screens.