CiSMA · BTH Forming Quality Analyser
production data → quality verdict
v0.1.0 · production
AGENT CONTRIBUTION SHEET

Forming Quality Analyser

13 agents contributed to this build. Each agent picked up to 5 of its most significant concrete contributions.

App Designer

app-designer · 2026-05-11T00:00:00Z

1. Paired every slider with a typed numeric input + visible [min–max]/default per Loom UX policy
2. Refactored /plot/fld and /plot/hardening into iplot_*.html templates with axes-only Plotly + ready-ping
3. Added /api/preview JSON curve endpoint driving debounced (~200 ms) postMessage updates to iframes
4. Wrote forming-overrides.css with copper accent, dashed-rule panels, KPI strip, engineering-drawing verdict badge
5. Externalised controls into forming_controls.js — two-way slider ↔ number bind, 400 ms ready-ping fallback

App tester

app-tester · 2026-05-11T00:00:00Z

1. Verified /healthz, /, /docs, /plot/fld return 200 via in-process TestClient
2. Confirmed POST /api/assess returns valid QualityResult for DP800 default card (verdict=PASS, score=100%)
3. Validated 5/6 engineering-drawing design-token markers present in / template
4. Confirmed canonical cbc-tokens.css and cbc-components.css ship in webapp/static/css/
5. Installed missing httpx dep into .venv to unblock TestClient probing

Board Selector

board-selector · 2026-05-11T00:00:00Z

1. Added volvo-press-technician advisor: maps production sensor data to shop-floor quality diagnostics
2. Added volvo-imq-inspector advisor: defines quality-output certificate contract and deviation paths
3. Retained mandatory mats-sigvant-advisor and johan-pilthammar-advisor for forming/material-card coverage

Forming-Quality Math

calibration-math-auditor · 2026-05-11T00:00:00Z

1. Implemented Hill-1948 plane-stress equivalent stress per Proc.R.Soc.A 193 eq.(5.7) p.286
2. Implemented Hollomon power-law hardening per Trans.AIME 162 eq.(3) p.271
3. Implemented Keeler-Brazier FLD0 + linearised FLC (slope -1 draw / +0.6 stretch)
4. Authored tolerances.yaml with 4 paper-anchored bands feeding the audit gate
5. Added Hypothesis property tests: Hill convexity, Hollomon monotonicity, FLC sign

Domain research brief

domain-researcher · 2026-05-11T09:00:00Z

1. Loaded fe-simulation + ml-for-engineering skills; scoped build as FE-surrogate + production-data quality-predictor
2. Identified 10 applicable methods (AutoForm Sigma, FLC-based FI, MLPRegressor, GP, SHAP, ensemble UQ, anomaly detection, active learning, k-fold, LOGO)
3. Defined 7 decision rules (ML/R2 realisation-split, ML/R3 k-fold, ML/R7 UQ, ML/R8 SHAP, ML/R4 LOGO, FE/R2 NIP, FE/R7 friction)
4. Documented 6 common errors with root-cause + fix (Sigma leakage, missing UQ, missing SHAP, HP search on test set, thickness mismatch, global friction)
5. Wrote hand-off instructions for 6 downstream agents: scaffolder, ml-validator, math-auditor, app-designer, data-validator, imq-inspector

App Scaffolder

engineering-app-scaffolder · 2026-05-11T10:30:00Z

1. Scaffolded FastAPI app (app/main.py): /api/assess endpoint wired to Hill-1948 + Keeler-Brazier math from app/math.py
2. Authored WORKSPACE_CONTRACT.md: per-parameter bounds table (6 params) with source-of-bounds citations for all sliders
3. Wrote webapp/templates/index.html: dual plot-tile layout (FLD + Hollomon), live slider -> /api/assess -> verdict badge flow
4. Stubbed app/manual_content.py with 5 ManualEntry records keyed to Hill1948, Hollomon1945, Keeler1977, Marciniak1967
5. Wired CI (.github/workflows/ci.yml) and weekly security audit (security.yml) per github-actions-ci skill

Session Handoff

handoff-writer · 2026-05-11T12:30:00Z

1. Wrote LOOM_HANDOFF.md (8 sections, 12 agents, 5 next-step suggestions) for cold-resume
2. Surfaced 2 unresolved BLOCKING Volvo IT findings (auth + data residency) prominently in §7
3. Captured all 4 contracted math.py function signatures verbatim from WORKSPACE_CONTRACT.md
4. Documented deferred deploy-gate decision (subdomain-deployer awaiting user execute confirmation)
5. Mapped 9 continuation tasks to specific agents + skills for standalone Claude Code resume

Test Suite Runner

pytest-runner-summarizer · 2026-05-11T00:00:00Z

1. Installed pytest + hypothesis into .venv (both absent from initial scaffold)
2. Identified missing .plot-tile CSS class in cbc-components.css; added iframe wrapper rule to fix test_design_components_present
3. Ran 16 tests (6 example-based, 3 property-based with 100 Hypothesis examples each, 7 webapp smoke); all pass after fix
4. Ran 4-quantity numerical tolerance audit against tolerances.yaml; all PASS (Hollomon d=6.1e-2 MPa vs band 0.5, Hill48 d=5.7e-14, FLD0 d=4.8e-7, thinning d=2.8e-17)

Security Review

security-reviewer · 2026-05-11T00:00:00Z

1. Verified HSTS max-age=63072000+includeSubDomains and full security-header suite on every response
2. Confirmed CSP has no unsafe-eval; flagged 'unsafe-inline' in script-src as residual risk for plot inline init
3. Confirmed no upload routes, no auth surface, no DB — attack surface limited to bounded numeric Pydantic inputs
4. Verified Dockerfile installs libmagic1 + chromium; rendering runs --no-sandbox in container only (acceptable)
5. Confirmed no secrets in code; CISMA_SECRET_KEY generated by deploy; APP_ENV/data dir read from env

Deploy to VPS

subdomain-deployer · 2026-05-11T12:10:00Z

1. Produced 7-step deploy plan targeting sheet-metal-quality-preview.data-driven-models.cloud
2. Confirmed .deploy.yml is correctly configured (port 8000, /healthz, persistent volume, env vars)
3. Identified CISMA_SECRET_KEY as auto-generated secret (not baked into config)
4. Emitted loom-decision gate — awaiting user execute/plan-only confirmation before live deploy

Manual Writer

user-manual-writer · 2026-05-11T00:00:00Z

1. Authored app/manual_content.py with 18 ManualEntry dicts and 4 Reference dicts covering all public math.py quantities and routes
2. Added Reference + ManualEntry dataclasses and dataclasses.asdict() pattern to fix dict-style access in /manual route
3. Wrote docs/manual.md (offline flat mirror) with inputs table, 3 worked examples, limitations, and numbered references
4. Wired KaTeX auto-render (delimiters $/$$/$$) + Mermaid.js ESM via jsdelivr into webapp/templates/manual.html {% block scripts %}
5. Authored pipeline flowchart (Mermaid, CiSMA paper-aesthetic theme) inside the pipeline guide entry documenting the full data flow

Volvo IT Sign-off

volvo-it-reviewer · 2026-05-11T08:45:00Z

1. Flagged missing auth on /api/assess as BLOCKING — production data leaves Volvo perimeter without access control
2. Flagged absent data residency documentation as BLOCKING — no DPA/in-memory-only statement for BTH-hosted infra
3. Identified external CDN dependencies (cdn.jsdelivr.net, cdn.plot.ly) as advisory risk for Volvo shop-floor browsers
4. Identified Chromium in production container as advisory CVE/attack-surface risk
5. Confirmed PASS on security headers (HSTS, CSP, X-Frame-Options, X-Content-Type-Options), input validation, and stateless data handling

Web App Reviewer

webapp-reviewer · 2026-05-11T08:30:00Z

1. Identified 2 blockers: app/main.py absent (no FastAPI app) and index.html template absent (primary route dead)
2. Flagged full math.py API drift vs WORKSPACE_CONTRACT: 4 contracted functions absent, replaced by Hill-48/FLD set
3. Confirmed pyproject.toml pins are correct: fastapi<0.120, starlette<1.0, pydantic>=2.5,<3
4. Confirmed cbc-tokens.css + cbc-components.css present; base.html correctly links both canonical CSS files
5. Flagged missing tests/test_routes.py and missing pypdf page-count assert in contributions_pdf.py

1. CiSMA (2025). engineering-analysis-webapp skill — engineering-ux-patterns reference. *Internal CiSMA skill kit*.
   Source-of-truth for axes-only iframe pattern, ready-ping protocol, plot-tile composition
2. R. Hill (1948). A theory of the yielding and plastic flow of anisotropic metals. *Proc. R. Soc. Lond. A 193, pp. 281-297*. doi:10.1098/rspa.1948.0045
   Plane-stress quadratic yield surface; eq. (5.7) p. 286 implemented as hill48_equivalent_stress_mpa.
3. J. H. Hollomon (1945). Tensile deformation. *Trans. AIME 162, pp. 268-290*.
   Power-law isotropic hardening sigma = K*eps^n implemented as hollomon_flow_stress_mpa.
4. S. P. Keeler, W. G. Brazier (1977). Relationship between laboratory material characterization and press-shop formability. *Proc. Microalloy 75, pp. 517-528*.
   FLD0 = ((23.3+14.13t)/100)*(n/0.21); eq. (4) p. 521; implemented as fld0_keeler_brazier with t clamped to 3 mm fit window.
5. Z. Marciniak, K. Kuczynski (1967). Limit strains in the processes of stretch-forming sheet metal. *Int. J. Mech. Sci. 9(9), pp. 609-620*. doi:10.1016/0020-7403(67)90066-5
   Conceptual basis for the +0.6 stretch-side FLC slope used in forming_limit_curve.
6. AutoForm Engineering GmbH (2024). AutoForm-Sigma: Stochastic process simulation reference manual, R10. *Vendor documentation*. https://www.autoform.com
   Primary training-data source for quality surrogate; realisation-split discipline
7. Aeddula, O. and Barlo, A. and Sigvant, M. and Pilthammar, J. and Larsson, T. (2025). Anomaly detection in incoming-material data for sheet metal forming. *Journal of Intelligent Manufacturing*.
   CISMA in-house reference for anomaly detection on material certificates
8. Lundberg, S. M. and Lee, S.-I. (2017). A unified approach to interpreting model predictions. *Advances in Neural Information Processing Systems, vol. 30*.
   Mandatory for engineering-acceptance gate; SHAP per prediction
9. Volk, W. and Hora, P. (2011). New algorithm for a robust user-independent evaluation of beginning instability for the experimental FLC determination. *International Journal of Material Forming, vol. 4, pp. 339-346*. doi:10.1007/s12289-010-1012-9
   FLC-based failure index formulation; used in calibration-math-auditor hand-off
10. Sigvant, M. et al. (2019). Friction in deep drawing: Influence of velocity and contact pressure. *International Journal of Material Forming, vol. 12, no. 6, pp. 853-866*. doi:10.1007/s12289-019-01477-4
    Friction decision rule; context-aware μ values for simulation training data
11. Keeler, S. P. and Brazier, W. G. (1977). Relationship between laboratory material characterization and press-shop formability. *Proceedings Microalloy 75*, pp. 517-528.
    Keeler-Brazier FLD0 formula; bounds for WORKSPACE_CONTRACT thinning_limit parameter
12. OWASP (2024). Application Security Verification Standard v4.0.3 (Level 2). *OWASP Foundation*. https://owasp.org/www-project-application-security-verification-standard/
    Reference checklist for L2 controls applied to this read-only API surface
13. MDN Web Docs (2025). Content Security Policy (CSP). *Mozilla Developer Network*. https://developer.mozilla.org/en-US/docs/Web/HTTP/CSP
    Used to audit the CSP directive set in main.py middleware
14. Hodges, J. and Jackson, C. and Barth, A. (2012). HTTP Strict Transport Security (HSTS). *RFC 6797, IETF*. doi:10.17487/RFC6797 https://www.rfc-editor.org/rfc/rfc6797
    Used to verify HSTS max-age and includeSubDomains directive

15. European Parliament and Council (2016). Regulation (EU) 2016/679 — General Data Protection Regulation. *Official Journal of the European Union*. https://eur-lex.europa.eu/eli/reg/2016/679/oj
    Basis for data residency and DPA requirements cited in blocking finding #2
16. OWASP Foundation (2021). OWASP Application Security Verification Standard v4.0.3. *OWASP*. https://owasp.org/www-project-application-security-verification-standard/
    Auth and session-management requirements backing the blocking auth finding

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