AI IMPACT REPORT NO. 228 · REVISED 5 OCTOBER 2026 · 250 ROLES COVERED

Bioengineers

AI transforming R&D, personalized medicine, and device development in bioengineering.

EXPOSURE	WINDOW	ADOPTION TODAY	READING
56	3–8 yrs	Medium-High	The role is being reshaped.
Elevated exposure	until change lands		Exposure is the share of today's work AI can plausibly take on within the window.

§ 01 WHAT IS HAPPENING

What is happening to bioengineers

Impact

AI is accelerating drug discovery, optimizing medical device design, enhancing diagnostic tools, and enabling personalized therapies. This shifts Bioengineers' focus towards high-level conceptualization, ethical considerations, complex systems integration, and the critical validation of AI-driven innovations in biological and medical applications.

Risk

Significant augmentation; emphasis on innovation, ethical oversight, and interdisciplinary collaboration.

The Bioengineer and Biomedical Engineer roles will be significantly augmented by AI, especially in data-intensive areas of research, design, and analysis. AI will automate repetitive analytical tasks and generate insights, requiring engineers to master these tools, critically evaluate AI outputs, focus on novel problem-solving, ethical implications of AI in biology and medicine, and complex system integration. Human creativity and nuanced judgment, particularly in patient-facing applications, remain paramount.

Sector readiness

Rapidly Advancing & Ethically Focused

The bioengineering and biomedical sectors are rapidly integrating AI into drug discovery, diagnostics, medical device development, and personalized medicine. Given the high regulatory and ethical stakes, integration is progressive, with significant emphasis on validation, safety, and responsible AI development.

§ 02 POSITION

Where you stand

i The Bioengineer and Biomedical Engineer roles are being profoundly transformed by AI, which is becoming an indispensable partner in every stage from research to clinical application.

ii AI will automate data analysis, iterative design, and predictive modeling, allowing these engineers to focus on high-level conceptualization, ethical considerations, and complex system integration.

iii Success in this field will increasingly depend on mastering AI tools, critically validating their outputs, and developing deep interdisciplinary skills to navigate the complexities of AI at the intersection of biology, medicine, and engineering.

§ 03 ACTIONS 15 POINTS

What this means for you

Concrete changes to how the work gets done, in the order you are likely to meet them.

01 **AI-Accelerated Drug Discovery & Development.** Bioengineers are leveraging AI to screen vast molecular libraries, predict drug efficacy and toxicity, and optimize compound structures for novel therapeutics. This significantly reduces the time and cost associated with traditional drug discovery, allowing for faster development of new treatments.

02 **Generative Design for Medical Devices.** Bioengineers are employing AI-powered generative design to explore thousands of optimal geometries for prosthetics, implants, and wearable sensors. This capability leads to more efficient, ergonomic, and patient-specific medical devices, accelerating the design and iteration cycles.

03 **AI-Enhanced Diagnostics & Imaging Analysis.** Bioengineers are integrating AI into advanced diagnostic tools, enabling more precise analysis of medical images (e.g., MRI, CT, microscopy) and biological samples. This involves AI identifying subtle patterns or biomarkers, assisting in earlier and more accurate disease detection.

04 **Personalized Medicine & Treatment Optimization.** Bioengineers are at the forefront of personalized medicine, utilizing AI to analyze individual patient data (genomics, proteomics, clinical history) to recommend tailored therapies, optimize drug dosages, and predict treatment responses. This moves towards highly individualized patient care.

05 **Synthetic Biology & Bio-manufacturing Automation.** Bioengineers are designing and overseeing AI-controlled robotic systems for high-throughput experimentation in synthetic biology labs. AI optimizes gene editing, cell culture processes, and bio-manufacturing workflows, accelerating the creation of new biological materials or therapeutic agents.

06 **Neuromorphic Engineering & Brain-Computer Interfaces (BCI).** Bioengineers are developing next-generation BCIs and neural prosthetics, where AI is crucial for interpreting complex brain signals, enabling intuitive control of external devices, or restoring lost neurological functions. This involves designing the AI algorithms that bridge biology and electronics.

07 **Wearable Health Tech & Continuous Monitoring.** Bioengineers are integrating AI into wearable and implantable devices for continuous health monitoring. AI analyzes biometric data in real-time, identifies anomalies, predicts health trends, and provides personalized feedback, enhancing preventative care and chronic disease management.

08 **Ethical AI in Biomedical Applications.** Given the sensitive nature of health data and patient outcomes, Bioengineers are deeply involved in ensuring ethical AI development. This includes addressing algorithmic bias, ensuring data privacy, designing for transparency and explainability, and navigating regulatory complexities in medical AI.

09 **AI-Driven Rehabilitation & Assistive Technologies.** Bioengineers are designing AI-powered rehabilitation devices and assistive technologies that adapt to individual patient needs and progress. AI optimizes therapy protocols, provides real-time feedback, and enhances the functionality of prosthetic limbs or exoskeletons.

10 **Computational Biology & Bioinformatics with AI.** Bioengineers are increasingly leveraging AI for large-scale analysis of genomic, proteomic, and metabolomic data. AI helps identify disease markers, understand biological pathways, and predict protein structures, accelerating fundamental biological research and target identification.

11 **AI for Biocompatibility & Material Safety.** Bioengineers are using AI to predict the biocompatibility and long-term safety of new materials for medical implants or drug delivery systems, based on their molecular structure and interactions with biological systems. This reduces the need for extensive in-vitro or in-vivo testing.

12 **Medical Robotics & Surgical Assistance.** Bioengineers are developing AI-enabled surgical robots that enhance precision, assist in complex procedures, and provide real-time guidance to surgeons. This includes designing the AI algorithms for navigation, tremor reduction, and real-time tissue analysis.

13 **AI-Enhanced Diagnostics for Global Health.** Bioengineers are designing AI solutions for rapid and affordable diagnostics in resource-limited settings. AI-powered portable devices can analyze samples and provide immediate results for infectious diseases, democratizing access to critical healthcare.

14 **Continuous Learning & Interdisciplinary Collaboration.** The rapid pace of innovation at the intersection of AI, biology, and engineering requires Bioengineers to continuously update their knowledge across disciplines, fostering collaboration with AI specialists, clinicians, and regulatory experts.

15 **AI for Bio-manufacturing Process Optimization.** Bioengineers are optimizing complex bio-manufacturing processes (e.g., vaccine production, cell therapy) using AI for real-time monitoring, yield optimization, and quality control. AI identifies bottlenecks and suggests improvements to ensure efficiency and product consistency.

§ 04 CAUSES 10 DRIVERS

What is pushing this change

01 **Explosive Growth of Biomedical & Omics Data.** AI can process and extract insights from vast amounts of patient data, clinical studies, and drug information.

02 **Advancements in Machine Learning (Deep Learning, Reinforcement Learning).** AI algorithms are becoming highly accurate at identifying patterns, predicting adverse events, and personalizing treatment recommendations.

03 **Demand for Personalized Medicine & Precision Therapies.** AI is crucial for interpreting individual patient data (genetics, lifestyle) to tailor medical treatments.

04 **Need for Faster & More Cost-Effective Drug Development.** AI accelerates drug discovery processes, identifies optimal compounds, and reduces the need for expensive, time-consuming lab experiments.

05 **Miniaturization of Sensors & Wearable Technologies.** Small, powerful sensors integrated into wearables and implants generate continuous biometric data for AI analysis.

06 **Regulatory Push for Improved Patient Outcomes & Safety.** AI can help predict disease progression, optimize treatment plans, and enhance patient safety by reducing medical errors.

07 **Rise of Medical Robotics & Automation.** Robots equipped with AI can perform precise surgical tasks, automate lab experiments, and assist in rehabilitation.

08 **Complexity of Biological Systems & Diseases.** AI can sift through vast biological datasets to uncover patterns and relationships in complex diseases, aiding research.

09 **Growth of Bio-manufacturing & Synthetic Biology.** AI optimizes bioprocesses, controls bioreactors, and automates lab tasks for efficient production of biologics and engineered organisms.

10 **Demand for Accessible & Remote Healthcare Solutions.** AI enables remote diagnostics, continuous patient monitoring, and tele-rehabilitation, expanding access to care.

§ 05 VARIATION 5 SECTORS

Impact by sector

The headline figure is an average. Where you work changes the picture.

Medical Device Bioengineers	AI for generative design of implants/prosthetics, sensor integration for smart devices, and automated testing/verification of device performance.
Pharmaceutical Bioengineers (Drug Discovery/Development)	AI for target identification, molecular screening, drug repurposing, and optimizing bioprocesses for therapeutic production.

Clinical Bioengineers (Hospital-based)	AI for medical imaging analysis, clinical decision support for diagnostics, patient monitoring, and optimizing hospital workflows.
Biomaterials Engineers	AI for predicting material biocompatibility, designing novel biomaterials with specific properties, and optimizing material synthesis.
Biomechanics Engineers	AI for simulating human movement, optimizing prosthetic/orthotic design for gait, and designing rehabilitation robotics.

§ 06 PREPARATION 8 SKILLS

Skills to build

The skills that keep the human part of this work valuable as the routine part is automated.

01 **AI/ML Literacy & Computational Skills.** Proficiency in using AI/ML tools, understanding fundamental algorithms, and applying computational methods to biological and medical data.

02 **Data Analysis & Bioinformatics.** Ability to process, analyze, and interpret large-scale biological datasets (genomic, proteomic, clinical) using AI and bioinformatics tools.

03 **Ethical AI & Regulatory Compliance (Healthcare).** Understanding the ethical implications of AI in healthcare (bias, privacy, accountability) and ensuring compliance with medical device and drug regulations.

04 **Systems Integration & Device Interoperability.** Designing and implementing complex biomedical systems that integrate hardware, software, sensors, and AI components seamlessly.

05 **Biomedical Domain Expertise.** Deep knowledge of human physiology, disease mechanisms, and medical principles to effectively apply engineering solutions.

06 **Generative Design & Optimization.** Skill in using AI-powered tools to rapidly generate and optimize designs for medical devices, biological constructs, or experimental setups.

07 **Interdisciplinary Collaboration.** Ability to effectively work with clinicians, biologists, data scientists, and regulatory experts to translate complex challenges into viable solutions.

08 **Problem-Solving & Critical Validation.** Diagnosing complex issues in biomedical systems, critically evaluating AI-generated insights, and making sound engineering judgments.

§ 07 INSTRUMENTS 11 ENTRIES

Tools in use

KINDS OF TOOL WORTH KNOWING

01 **AI-Powered Drug Discovery Platforms.** Software platforms that use AI/ML to predict drug-target interactions, identify novel compounds, and optimize therapeutic candidates.

02 **Generative Design Software (for Medical Devices).** Software that uses AI to rapidly generate and optimize designs for medical implants, prosthetics, and other devices based on specific criteria.

03 **AI-Enhanced Medical Imaging Analysis Tools.** Software that leverages AI for automated detection, segmentation, and quantification of features in medical images (MRI, CT, X-ray, microscopy).

04 **Bioinformatics & Computational Biology Platforms (with AI/ML).** Platforms that integrate AI/ML algorithms for analyzing complex omics data (genomics, proteomics) to identify biomarkers and understand biological pathways.

05 **Robotics & Lab Automation Systems (AI-controlled).** Automated laboratory systems and robots that use AI for precision control, high-throughput experimentation, and complex bio-manufacturing processes.

06 **AI-Enabled Wearable Health & IoT Devices.** Devices with embedded AI that collect and analyze real-time physiological data for continuous health monitoring and personalized feedback.

NAMED TOOLS ALREADY IN USE

Insilico Medicine
AI-powered drug discovery companies that use AI for target identification, molecule generation, and clinical trial prediction.

Ansys VISIT
Major engineering simulation and CAD suites with integrated AI for generative design and optimization of complex medical device geometries.

Aidoc VISIT
AI platforms for medical imaging analysis that assist radiologists and clinicians in detecting acute abnormalities and streamlining workflows.

Illumina VISIT
Leading genomics sequencing and bioinformatics platforms, and AI models for predicting protein structures from genetic sequences.

Hamilton Company VISIT
Providers of automated liquid handling robotics and lab automation systems that can be integrated with AI for intelligent control and data analysis.

§ 08 EXAMPLES 5 EXAMPLES

In practice

Ways people in this role are already using AI, and what they get from it.

Accelerate Drug Discovery for a New Therapeutic

EXAMPLE 1

HOW Utilize an AI-powered drug discovery platform to screen billions of potential molecular compounds, predict their binding affinity to a specific disease target, and identify novel lead candidates for drug development.

GAIN Significantly reduces the time and cost of early-stage drug development, leading to faster availability of new treatments for patients.

Optimize Prosthetic Limb Design for a Patient

EXAMPLE 2

HOW Input a patient's anatomical data and functional requirements into generative design software. The AI will rapidly generate multiple optimized designs for a prosthetic limb socket or a custom implant, balancing strength, weight, and comfort.

GAIN Creates highly customized, efficient, and comfortable prosthetic designs, improving patient quality of life and accelerating design cycles.

Enhance Disease Detection in Medical Images

EXAMPLE 3

HOW Integrate an AI algorithm into a diagnostic imaging system (e.g., for MRI scans). The AI will analyze the images and highlight subtle abnormalities that might indicate early-stage disease (e.g., a tumor) with high accuracy, assisting radiologists.

GAIN Enables earlier and more accurate disease diagnosis, leading to improved patient outcomes and more timely interventions.

Design a Personalized Drug Regimen

EXAMPLE 4

HOW Apply an AI model to a patient's genomic data, clinical history, and metabolic profile to predict their response to different medications. The AI suggests an optimal drug choice and dosage to maximize efficacy and minimize side effects.

GAIN Optimizes therapeutic effectiveness and minimizes adverse drug reactions for individual patients, improving treatment success rates.

Automate Bioreactor Control for Cell Therapy Production

EXAMPLE 5

HOW Implement an AI-driven control system for a bioreactor used in cell therapy manufacturing. The AI will continuously monitor parameters (pH, temperature, cell density) and make real-time adjustments to optimize cell growth and product yield.

GAIN Increases the efficiency and consistency of biological production processes, reducing costs and ensuring high-quality therapeutic products.

§ 09 CONTEXT

How this role compares

Three neighbouring roles chosen to show the direction of travel.

Medical Lab Technicians (Routine Testing) / Medical Scribes (Transcription) MORE EXPOSED	AI IMPACT	Very High (Robotics can automate repetitive lab procedures; AI can automate transcription and data entry from physician notes.)
	WORK MOVES TO	Shift to overseeing automated lab systems, troubleshooting exceptions, or validating AI-generated documentation/coding.
AI/ML Researchers (Computational Biology/Healthcare AI) DIFFERENT SKILLS, GROWING	AI IMPACT	Foundational (They develop the core AI algorithms, models, and frameworks that bioengineers will then integrate into applications.)
	WORK MOVES TO	Deep expertise in AI/ML algorithms, data science, mathematics, and advanced programming, often with a focus on biological or medical data.
Surgeons / Physicians (Complex Procedures) COMPLEMENTARY, LESS EXPOSED	AI IMPACT	Moderate Augmentation (AI assists in diagnostics, treatment planning, and surgical guidance), but core manual dexterity, patient interaction, and ultimate clinical judgment remain paramount.
	WORK MOVES TO	Performing complex procedures, high-touch patient communication, and making nuanced clinical decisions that require human empathy and dexterity.

§ 10 VERDICT

Closing judgement

> For Bioengineers and Biomedical Engineers, AI is a transformative partner, not a replacement. It amplifies analytical capabilities, accelerates discovery, and enables unprecedented precision in design and application. The future bioengineer will be a master of AI tools, translating complex biological data into innovative solutions that advance human health, all while navigating the profound ethical implications of this powerful technology.

§ 11 BASIS REVISED 5 OCTOBER 2026

Evidence and revisions

What the exposure figure rests on, what changed when it was last revised, and the published work cited for this role.

SCORE

45 to 56

WINDOW

4-9 years to 3-8 years

The 5 October 2026 review moved the score up by 11 points.

Exposure Index v2. Inputs: task applicability 60/100 (Microsoft AI applicability score 0.30 for Bioengineers and biomedical engineers); observed usage 18/100 (Anthropic observed exposure 0.13); official exposure tier 100/100 (BLS: very high); labour-market trajectory 31/100 (BLS projects employment to grow 7.6% over 2025–35); published adoption rating 55/100 (medium-high adoption). Weighted base 55.8. Final score 56. The previous figure of 45 was raised by 11 points: the earlier method kept 60% of the weight on an undocumented editorial prior and capped movement at fifteen points, so the measured evidence was only partly reflected. The change window moves from 4-9 years to 3-8 years under the one-notch-per-ten-points rule.

HOW THE FIGURE IS BUILT (EXPOSURE INDEX V2)

Task applicability — Microsoft Research, AI applicability score	60 × 35%	20.9
Observed usage — Anthropic Economic Index, observed exposure	18 × 20%	3.5
Official exposure tier — US BLS AI-exposure category	100 × 20%	20.0
Labour-market trajectory — US BLS projected employment change 2025–35	31 × 10%	3.1
Published adoption rating — This report's adoption level	55 × 15%	8.3
Weighted base		55.8
Exposure score		56

MEASURES BEHIND THE SCORE

US Bureau of Labor Statistics · *Employment Projections 2025–35 and AI Exposure Categories* (27 August 2026)

AI-exposure tier: Very high. Projected employment change 2025–35: +7.6%. Matched to Bioengineers and biomedical engineers.

PUBLISHER PDF ARCHIVED COPY

Microsoft Research · *Working with AI: Measuring the Applicability of Generative AI to Occupations* (10 July 2025)

AI applicability score 0.30 (percentile 88 of 785 occupations) for SOC 17-2031.

PUBLISHER PDF ARCHIVED COPY

Anthropic · *Anthropic Economic Index report: Cadences* (26 June 2026)

Observed exposure 0.13 for SOC 17-2031 (percentile 79 of 756 occupations).

PUBLISHER PDF

UK Department for Science, Innovation and Technology · *Assessment of AI capabilities and the impact on the UK labour market* (28 January 2026)

UK context: around 70% of UK workers are in occupations with tasks AI could perform or enhance, above the US average; a one-standard-deviation rise in exposure was associated with a 3.9% fall in UK job postings.

PUBLISHER ARCHIVED COPY

Archived copies are served only where the licence permits; otherwise the link goes to the publisher. Full research library: https://www.careerguard.ai/sources

§ 12 APPENDIX

Method and sources

Each report was written from a large body of published research. The exposure score itself is computed, not written: it is the CareerGuard Exposure Index, a weighted average of occupation-level measures from the US Bureau of Labor Statistics (AI-exposure classification and 2025–35 projections), Microsoft Research (AI applicability scores) and Anthropic (observed exposure), together with the adoption rating published on the report. The organisations and publications below are the standing literature behind the narrative sections. Every source, with dates, licences and archived copies where we are permitted to hold them, is catalogued in the research library.

Exposure Index v2 (October 2026). Each input is scaled to 0–100 and weighted: task applicability 35% (Microsoft AI applicability score ÷ 0.5), observed usage 20% (Anthropic observed exposure ÷ 0.75), official exposure tier 20% (BLS very high = 100, high = 70, moderate = 40, low = 10), labour-market trajectory 10% (50 2.5 × projected % employment change), published adoption rating 15% (very high = 85, high = 70, medium-high = 55, medium = 40, low-medium = 25, low = 10). Inputs not measured for an occupation are dropped and the remaining weights renormalised. An editorial adjustment of at most ±12 points is allowed only for automation channels the measures cannot see (robotics, self-service, machine vision, medical imaging, RPA/OCR, generative video) and is always logged with its reason. Scores are whole numbers, not rounded to five. The change window shifts one notch (a year at each end) per ten points of movement.

I GLOBAL AND MACROECONOMIC IMPACT OF AI ON WORK

World Economic Forum

The Future of Jobs Report series — Employer survey of expected job growth and decline, skill shifts and technology adoption (2020, 2023 and 2025 editions); Artificial Intelligence and the Future of Entry-Level Work (2026).
AI governance and transformation reports — Frameworks on ethical AI, talent strategy and industry transformation.

McKinsey Global Institute

AI, Automation and the Future of Work series — Research quantifying automation potential by task, sector and demographic, from "Jobs Lost, Jobs Gained" to "Agents, robots, and us" (2025).
Industry-specific reports — Financial services, healthcare, manufacturing and others.

PwC

Global AI Jobs Barometer — Annual analysis of job postings and productivity by AI exposure (2024–2026 editions).
Upskilling Hopes and Fears survey — Employee perceptions and readiness.

Microsoft Research and Anthropic

Working with AI (2025); Anthropic Economic Index (2025–2026) — Occupation-level usage data from Copilot and Claude conversations, the two observed-usage measures behind the 2026 revision.

Stanford Digital Economy Lab and Stanford HAI
Canaries in the Coal Mine? (2025–2026); AI Index Report (annual) — Payroll evidence on early-career employment in exposed occupations; annual measurement of AI capability, investment and adoption.

Deloitte
Human Capital Trends series — Workforce, talent and HR technology trends.
Tech Trends series — Emerging technologies and their business implications.

Accenture
Technology Vision series — Forward-looking analysis of emerging technology, with emphasis on AI.
Fjord Trends — Design, innovation and human experience in a digital world.

Boston Consulting Group
AI/ML insights and industry solutions — "The AI Revolution in the Workplace" and related research.

EY
AI and workforce reports — Adoption, talent strategy and ethics.

IBM Institute for Business Value
AI and automation studies — Business models, workforce evolution and leadership.

OECD
AI Policy Observatory — International data and policy on AI, labour markets and skills.
Employment Outlook — Labour-market trends including technological impact (2023–2026 editions).

International Labour Organization
Generative AI and Jobs: A Refined Global Index of Occupational Exposure (2025) — Task-level exposure gradients for every ISCO occupation; successor to the 2023 global index.

International Monetary Fund
Staff Discussion Notes on AI and work (2024, 2026) — Complementarity framing: where AI augments and where it substitutes.

UK Department for Science, Innovation and Technology
Assessment of AI capabilities and the impact on the UK labour market (2026) — UK occupational exposure and job-posting evidence.

Brookings Institution
AI and automation research — Economic and social implications, displacement and skills.

Yale Budget Lab and Goldman Sachs Research
Tracking the Impact of AI on the Labor Market; AI and the US labour market (2026) — Aggregate labour-market monitoring; macro displacement estimates.

Oxford University (Oxford Martin School)
The Future of Employment — Frey & Osborne and subsequent research on susceptibility to automation.

MIT Technology Review
AI & Work — Reporting on AI research and its implications for industries and jobs.

Gartner
Hype Cycle for Artificial Intelligence — Maturity and adoption of AI technologies.
Future of Work reports — Workplace models and talent strategy.

U.S. Bureau of Labor Statistics
Employment Projections 2025–35; AI Exposure Categories; Occupational Outlook Handbook — Ten-year employment projections and, from the 2025 cycle, an AI-exposure tier for every detailed occupation.

Indeed Hiring Lab
AI at Work Report (2025) and posting-market updates — Skill-level transformation estimates and job-posting trends by occupation.

II CORE AI AND MACHINE-LEARNING RESEARCH

OpenAI
Research papers, blog and API documentation — Large language models, generative AI, safety and societal impact.

Google DeepMind
Research papers and blog — Reinforcement learning, AI for science, AGI and ethics.

Meta AI
Research papers and blog — Large language models, computer vision, AI for social good.

Hugging Face
Transformers library and model hub — Open-source state-of-the-art NLP models.

TensorFlow and PyTorch
Documentation and community forums — Core frameworks illustrating practical capability.

arXiv
cs.AI, cs.LG, cs.CV, cs.CL — Pre-print research.

NeurIPS and ICML
Conference proceedings — Top-tier academic research.

ACM and IEEE
Journals and proceedings — ACM Computing Surveys; IEEE Transactions on AI.

Kaggle
Datasets and competition solutions — Applied machine learning on real-world problems.

The Alan Turing Institute
Research and reports — Responsible and applied AI.

III ETHICAL AND RESPONSIBLE AI DEPLOYMENT

NIST
AI Risk Management Framework — Voluntary framework for managing AI risk.

European Commission
AI Act — Risk-tiered legal framework for AI.
Ethics Guidelines for Trustworthy AI — Principles for responsible development.

Partnership on AI
Research and best practice — Responsible AI development.

AI Now Institute
Annual reports — Social implications: power, inequality, rights.

ACM FAccT
Proceedings — Fairness, accountability and transparency.

Data & Society
Publications — Social implications of data-centric technology.

WIPO
Conversation on IP and AI — Intellectual-property implications of AI.

IEEE Global Initiative on Ethics of A/IS
Ethically Aligned Design — Recommendations for ethical AI design.

Center for AI and Digital Policy
Policy briefs — Accountable AI policy.

REPORT NO. 228 · BIOENGINEERS · WWW.CAREERGUARD.AI/REPORTS/BIOENGINEERS · MARKDOWN AT /MD · FREE TO READ