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Sommario/riassunto

The mechanical properties of cells are largely determined by the cytoskeleton. The cytoskeleton is an intricate and complex structure formed by protein filaments, motor proteins, and crosslinkers. The three main types of protein filaments are microtubules, actin filaments, and intermediate filaments (IFs). Whereas the proteins that form microtubules and actin filaments are exceptionally conserved throughout cell types and organisms, the family of IFs is diverse. For example, the IF protein vimentin is expressed in relatively motile fibroblasts, and keratin IFs are found in epithelial cells. This variety of IF proteins might therefore be linked to the various mechanical properties of different cell types. In the scope of this thesis, I combine

studies of IF mechanics on different time scales and in systems of increasing complexity, from single filaments to networks in cells. This multiscale approach allows for the simplification necessary to interpret observations while adding increasing physiological context in subsequent experiments. We especially focus on the tunability of the IF mechanics by environmental cues in these increasingly complex systems. In a series of experiments, including single filament elongation studies, single filament stretching measurements with optical tweezers, filament-filament interaction measurements with four optical tweezers, microrheology, and isotropic cell stretching, we characterize how electrostatic (pH and ion concentration) and hydrophobic interactions (detergent) provide various mechanisms by which the mechanics of the IF cytoskeleton can be tuned. These studies reveal how small changes, such as charge shifts, influence IF mechanics on multiple scales. In combination with simulations, we determine the mechanisms by which charge shifts alter single vimentin filament mechanics and we extract energy landscapes for interactions between single filaments. Such insights will provide a deeper understanding of the mechanisms by which cells can maintain their integrity and adapt to the mechanical requirements set by their environment.

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Nota di contenuto	Frontmatter -- Contents -- Digging into Digital Roots. Towards a Conceptual Media and Communication History -- Technologies and Connections -- Networks -- Media Convergence -- Multimedia -- Interactivity -- Artificial Intelligence -- Agency and Politics -- Global Governance -- Data(fication) -- Fake News -- Echo Chambers -- Digital Media Activism -- Users and Practices -- Telepresence -- Digital Loneliness -- Amateurism -- User-Generated Content (UGC) -- Fandom -- Authenticity -- Authors
Sommario/riassunto	As media environments and communication practices evolve over time, so do theoretical concepts. This book analyzes some of the most well-known and fiercely discussed concepts of the digital age from a historical perspective, showing how many of them have pre-digital roots and how they have changed and still are constantly changing in the digital era. Written by leading authors in media and communication studies, the chapters historicize 16 concepts that have become central in the digital media literature, focusing on three main areas. The first part, Technologies and Connections, historicises concepts like network, media convergence, multimedia, interactivity and artificial intelligence. The second one is related to Agency and Politics and explores global governance, datafication, fake news, echo chambers, digital media

activism. The last one, Users and Practices, is finally devoted to telepresence, digital loneliness, amateurism, user generated content, fandom and authenticity. The book aims to shed light on how concepts emerge and are co-shaped, circulated, used and reappropriated in different contexts. It argues for the need for a conceptual media and communication history that will reveal new developments without concealing continuities and it demonstrates how the analogue/digital dichotomy is often a misleading one.