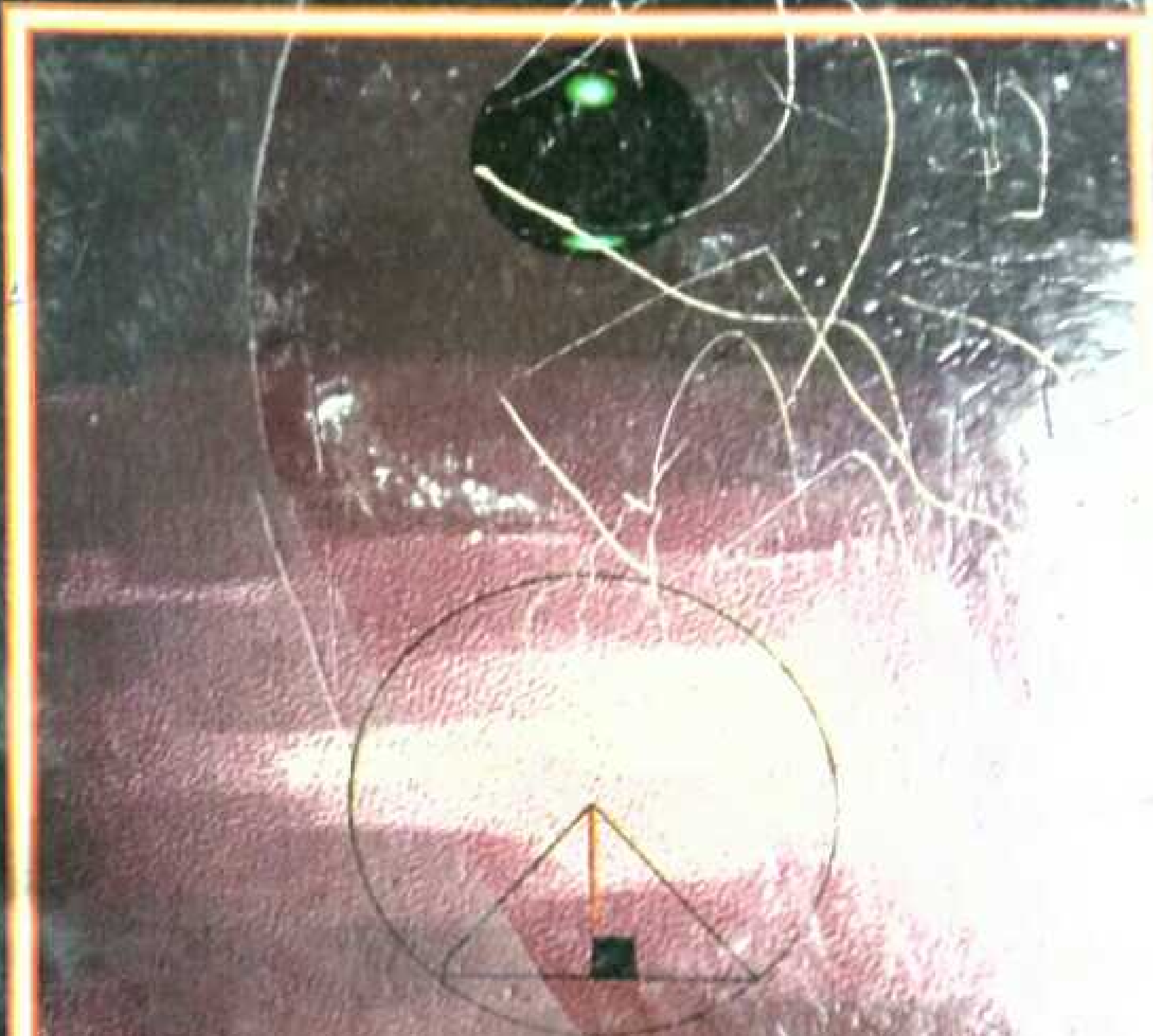
ROGER S. PRESSMAN

SOFTWARE ENGINEERING

A PRACTITIONER'S APPROACH



Roger S. Pressman
20th ANNIVERSARY EDITION
Software Engineering

FIFTH EDITION

Mc GRAW-HILL INTERNATIONAL EDITIONS

Schaum's Outline Series

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PREFACE

When a computer software succeeds—when it meets the needs of the people who use it, when it performs flawlessly over a long period of time, when it is easy to modify and even easier to use—it can and does change things for the better. But when software fails—when its users are dissatisfied, when it is error prone, when it is difficult to change and even harder to use—bad things can and do happen. We all want to build software that makes things better, avoiding the bad things that lurk in the shadow of failed efforts. To succeed, we need discipline when software is designed and built. We need an engineering approach.

In the 20 years since the first edition of this book was written, software engineering has evolved from an obscure idea practiced by a relatively small number of zealots to a legitimate engineering discipline. Today, it is recognized as a subject worthy of serious research, conscientious study, and tumultuous debate. Throughout the industry, *software engineer* has replaced *programmer* as the job title of preference. Software process models, software engineering methods, and software tools have been adopted successfully across a broad spectrum of industry applications.

Although managers and practitioners alike recognize the need for a more disciplined approach to software, they continue to debate the manner in which discipline is to be applied. Many individuals and companies still develop software haphazardly, even as they build systems to service the most advanced technologies of the day. Many professionals and students are unaware of modern methods. And as a result, the quality of the software that we produce suffers and bad things happen. In addition, debate and controversy about the true nature of the software engineering approach continue. The status of software engineering is a study in contrasts. Attitudes have changed, progress has been made, but much remains to be done before the discipline reaches full maturity.

The fifth edition of *Software Engineering: A Practitioner's Approach* is intended to serve as a guide to a maturing engineering discipline. The fifth edition, like the four editions that preceded it, is intended for both students and practitioners, retaining its appeal as a guide to the industry professional and a comprehensive introduction to the student at the upper level undergraduate or first year graduate level. The format and style of the fifth edition have undergone significant change, making the presentation more reader-friendly and the content more easily accessible.

The fifth edition is considerably more than a simple update. The book has been revised to accommodate the dramatic growth in the field and to emphasize new and important software engineering practices. In addition, a comprehensive Web site has been developed to complement the content of the book. The Web site, which I call