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# THE ART OF INTRUSION

**The Real Stories Behind the Exploits of Hackers, Intruders & Deceivers**

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**Kevin D. Mitnick  
William L. Simon**



Wiley Publishing, Inc.

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*For Shelly Jaffe, Reba Vartanian, Chickie Leventhal,  
Mitchell Mitnick*

*For Darci and Briannah*

*And for the late Alan Mitnick, Adam Mitnick,  
Sydney Kramer, Jack Biello.*

*For Arynne, Victoria, Sheldon, and David, and for Vincent  
and  
Elena*

# Preface

Hackers play one-up among themselves. Clearly one of the prizes would be bragging rights from hacking into my security company's Web site or my personal system.

Another would be that they had made up a story of a hack and planted it on me and my co-author Bill Simon so convincingly that we were taken in, believed it as true, and included it in this book.

That has presented a fascinating challenge, a game of wits that the two of us have played time after time as we did the interviews for the book. For most reporters and authors, establishing authenticity is a fairly routine matter: Is this really the person he or she claims to be? Is this person or was this person really working for the organization he or she claims? Did this person have the position he or she says? Does this person have documentation to back up the story, and can I verify that the documents are valid? Are there reputable people who will support the story or parts of it?

With hackers, checking the bona fides is tricky. Most of the people whose stories appear in this book, other than a few who have already been to prison, would face felony charges if their true identities could be determined. So, asking for real names, or expecting to be offered as proof, is an iffy proposition.

These people have only come forward with their stories because they trust me. They know I've done time myself, and they are willing to rely on my not betraying them in a way that could put them in that position. Yet, despite the risks, many did offer tangible proof of their hacks.

Even so, it's possible — in fact, it's likely — that some people exaggerated their stories with details intended to make them more compelling, or spun a story that was a total fabrication, but constructed around enough workable exploits to give them the ring of truth.

Because of that risk, we have been diligent in holding to a high standard of reliability. Through all the interviews, I have challenged every technical detail, asking for in-depth explanations of anything that didn't sound quite right, and sometimes following up later to see if the story was still the same or if he or she told it differently the second time around. Or, if this person "couldn't remember" when asked about some hard-to-accomplish step omitted from the story. Or, if this person just didn't seem to know enough to do what he or she claimed or couldn't explain how he or she got from point A to point B.

Except where specifically noted, every one of the main stories in this book has passed my "smell test." My co-author and I agreed on the believability of every person whose story we have included. Nevertheless, details have often been changed to protect the hacker and the victim. In several of the stories, the identities of companies are disguised. I modified the names, industries, and locations of targeted organizations. In some cases, there is misleading information to protect the identity of the victim or to prevent a duplication of the crime. However, the basic vulnerabilities and nature of the incidents are accurate.

At the same time, because software developers and hardware manufacturers are continually fixing security vulnerabilities through patches and new product versions, few of the exploits described in these pages still work as described here. This might lead the overconfident reader to decide that he or she need not be concerned, that, with vulnerabilities attended to and corrected, the reader and his

or her company have nothing to be worried about. But the lesson of these stories, whether they happened six months ago or six years ago, is that hackers are finding new vulnerabilities every day. Read the book not to learn specific vulnerabilities in specific products, but to change your attitudes and gain a new resolve.

And read the book, too, to be entertained, awed, amazed at the continually surprising exploits of these wickedly clever hackers.

Some are shocking, some are eye-opening, some will make you laugh at the inspired nerve of the hacker. If you're an IT or security professional, every story has lessons for you on making your organization more secure. If you're a non-technical person who enjoys stories of crime, daring, risk-taking, and just plain guts, you'll find all that here.

Every one of these adventures involved the danger of a knock at the door, where a posse of cops, FBI agents, and Secret Service types would be waiting with handcuffs ready. And, in a number of the cases, that's exactly what happened.

For the rest, the possibility still remains. No wonder most of these hackers have never been willing to tell their stories before. Most of these adventures you will read here are being published for the very first time.

# Acknowledgments

**By Kevin Mitnick**

This book is dedicated to my wonderful family, close friends, and, most of all, the people that made this book possible — the black-hat and white-hat hackers who contributed their stories for our education and entertainment.

*The Art of Intrusion* was even more challenging to write than our last book. Instead of using our combined creative talent to develop stories and anecdotes to illustrate the dangers of social engineering and what businesses can do to mitigate it, both Bill Simon and I relied heavily on interviewing former hackers, phone phreaks, and hackers turned security professionals. We wanted to write a book that would be both a crime thriller and an eye-opening guide to helping businesses protect their valuable information and computing resources. We strongly believe that by disclosing the common methodologies and techniques used by hackers to break into systems and networks, we can influence the community at large to adequately address these risks and threats posed by savvy adversaries.

I have had the extraordinary fortune of being teamed up with best-selling author Bill Simon, and we worked diligently together on this new book. Bill's notable skills as a writer include his magical ability to take information provided by our contributors and write it in such a style and manner that anyone's grandmother could understand it. More importantly, Bill has become more than just a business partner in writing, but a loyal friend who has been there for me during this whole development process. Although we

had some moments of frustration and differences of opinion during the development phase, we always work it out to our mutual satisfaction. In a little over two years, I'll finally be able to write and publish the *The Untold Story of Kevin Mitnick*, after certain government restrictions expire. Hopefully, Bill and I will collaborate on this project as well.

Bill's wonderful wife, Arynne Simon, also has a warm place in my heart. I appreciate her love, kindness, and generosity that she has shown me in the last three years. My only disappointing experience is not being able to enjoy her great cooking. Now that the book is finally finished, maybe I can convince her to cook a celebration dinner!

Having been so focused on *The Art of Intrusion*, I haven't been able to spend much quality time with family and close friends. I became somewhat of a workaholic, similar to the days where I'd spend countless hours behind the keyboard exploring the dark corners of cyberspace.

I want to thank my loving girlfriend, Darci Wood, and her game-loving daughter Briannah for being supportive and patient during this time-consuming project. Thank you, baby, for all your love, dedication, and support that you and Briannah have provided me while working on this and other challenging projects.

This book would not have been possible without the love and support of my family. My mother, Shelly Jaffe, and my grandmother, Reba Vartanian, have given me unconditional love and support throughout my life. I am so fortunate to have been raised by such a loving and dedicated mother, who I also consider my best friend. My grandmother has been like a second mom to me, providing me with the same nurturing and love that usually only a mother can give. She has been extremely helpful in handling some of my business affairs, which at times interfered with her schedule. In every instance, she made my business a top priority, even when it



was inconvenient to do so. Thank you, Gram, for helping me get the job done whenever I needed you. As caring and compassionate people, they've taught me the principles of caring about others and lending a helping hand to the less fortunate. And so, by imitating the pattern of giving and caring, I, in a sense, follow the paths of their lives. I hope they'll forgive me for putting them on the back burner during the process of writing this book, passing up chances to see them with the excuse of work and deadlines to meet. This book would not have been possible without their continued love and support that I'll forever hold close to my heart.

How I wish my Dad, Alan Mitnick, and my brother, Adam Mitnick, would have lived long enough to break open a bottle of champagne with me on the day our second book first appears in a bookstore. As a salesman and business owner, my father taught me many of the finer things that I will never forget.

My mother's late boyfriend, Steven Knittle, has been a father figure to me for the past 12 years. I took great comfort knowing that you were always there to take care of my mom when I could not. Your passing has had a profound impact on our family and we miss your humor, laughter, and the love you brought to our family. RIP.

My aunt Chickie Leventhal will always have a special place in my heart. Over the last couple years, our family ties have been strengthened, and our communication has been wonderful. Whenever I need advice or a place to stay, she is always there offering her love and support. During my intense devotion to writing this book, I sacrificed many opportunities to join her, my cousin, Mitch Leventhal, and her boyfriend, Dr. Robert Berkowitz, for our family get-togethers.

My friend Jack Biello was a loving and caring person who spoke out against the extraordinary mistreatment I endured at the hands of journalists and government prosecutors. He was a key voice in the Free Kevin movement and a writer who had an extraordinary talent for writing compelling articles exposing the information that the government didn't want you to know. Jack was always there to fearlessly speak out on my behalf and to work together with me preparing speeches and articles, and, at one point, represented me as a media liaison. While finishing up the manuscript for *The Art of Deception* (Wiley Publishing, Inc., 2002), Jack's passing left me feeling a great sense of loss and sadness. Although it's been two years, Jack is always in my thoughts.

One of my closest friends, Caroline Bergeron, has been very supportive of my endeavor to succeed on this book project. She is a lovely and brilliant soon-to-be lawyer living in the Great White North. Having met her during one of my speaking engagements in Victoria, we hit it off right away. She lent her expertise to proofreading, editing, and correcting the two-day social engineering seminar that Alex Kasper and I developed. Thank you, Caroline, for being there for me.

My colleague Alex Kasper is not only my best friend but also my colleague; we are currently working on delivering one-day and two-day seminars on how businesses can recognize and defend against social engineering attacks. Together we hosted a popular Internet talk radio show known as "The Darkside of the Internet" on KFI radio in Los Angeles. You have been a great friend and confidant. Thank you for your invaluable assistance and advice. Your influence has always been positive and helpful with a kindness and generosity that often extended far beyond the norm.

Paul Dryman has been a family friend for many, many years. Paul was my late father's best friend. After my dad's passing, Paul has been a father figure, always willing to help and talk with me about anything on my mind. Thank you, Paul, for your loyal and devoted friendship to my father and I for so many years.

Amy Gray has managed my speaking career for the last three years. Not only do I admire and adore her personality, but I value how she treats other people with such respect and courtesy. Your support and dedication to professionalism has contributed to my success as a public speaker and trainer. Thank you so much for your continued friendship and your commitment to excellence.

Attorney Gregory Vinson was on my defense team during my years-long battle with the government. I'm sure he can relate to Bill's understanding and patience for my perfectionism; he has had the same experience working with me on legal briefs he has written on my behalf. Gregory is now my business attorney diligently working with me on new contracts and negotiating business deals. Thank you for your wonderful support and diligent work, especially when needed on short notice.

Eric Corley (aka Emmanuel Goldstein) has been an active supporter and close friend for over a decade. He has always looked out for my best interest and has publicly defended me when I was demonized by Miramax Films and certain other journalists. Eric has been extremely instrumental in getting the *word* out during the government's prosecution of me. Your kindness, generosity, and friendship mean more to me than words can express. Thank you for being a loyal and trusted friend.

Steve Wozniak and Sharon Akers have given much of their time to assist me and are always there to help me out. The frequent rearranging of your schedules to be there to

support me is much appreciated and it warms me to call both of you my friends. Hopefully, now that this book is completed, we will have more time to get together for some gadget quality time. Steve — I'll never forget the time that you, Jeff Samuels, and I drove through the night in your Hummer to get to DEFCON in Las Vegas, switching drivers constantly so that we could all check our e-mail and chat with friends over our GPRS wireless connections.

And as I write these acknowledgments, I realize I have so many people to thank and to express appreciation to for offering their love, friendship, and support. I cannot begin to remember the names of all the kind and generous people that I've met in recent years, but suffice to say, I would need a large USB flash drive to store them all. There have been so many people from all over the world who have written me words of encouragement, praise, and support. These words have meant a great deal to me, especially during the times I needed it most.

I'm especially thankful to all my supporters who stood by me and spent their valuable time and energy getting the word out to anyone that would listen, voicing their concern and objection over my unfair treatment and the hyperbole created by those who sought to profit from the "The Myth of Kevin Mitnick."

I'm eager to thank those people who represent my professional career and are dedicated in extraordinary ways. David Fugate, of Waterside Productions, is my book agent who went to bat for me on many occasions before and after the book contract was signed.

I very much appreciate the opportunity that John Wiley & Sons has given me to author another book, and for their confidence in our ability to develop a best seller. I wish to thank the following Wiley people who made this dream possible: Ellen Gerstein; Bob Ipsen; Carol Long, who always

promptly responds to my questions and concerns (my number one contact at Wiley and executive editor); and Emilie Herman and Kevin Shafer (developmental editors), who have both worked with us as a team to get the job done.

I have had too many experiences with lawyers, but I am eager to have a place to express my thanks for the lawyers who, during the years of my negative interactions with the criminal justice system, stepped up and offered to help me when I was in desperate need. From kind words to deep involvement with my case, I met many who don't at all fit the stereotype of the self-centered attorney. I have come to respect, admire, and appreciate the kindness and generosity of spirit given to me so freely by so many. They each deserve to be acknowledged with a paragraph of favorable words; I will at least mention them all by name, for every one of them lives in my heart surrounded by appreciation: Greg Aclin, Fran Campbell, Lauren Colby, John Dusenbury, Sherman Ellison, Omar Figueroa, Jim French, Carolyn Hagin, Rob Hale, David Mahler, Ralph Peretz, Alvin Michaelson, Donald C. Randolph, Alan Rubin, Tony Serra, Skip Slates, Richard Steingard, Honorable Robert Talcott, Barry Tarlow, John Yzurdiaga, and Gregory Vinson.

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### **By Bill Simon**

In doing our first book, *The Art of Deception*, Kevin Mitnick and I forged a friendship. While writing this one, we continually found new ways of working together while deepening our friendship. So, my first words of appreciation

go to Kevin for being an outstanding “travel companion” as we shared this second journey.

David Fugate, my agent at Waterside Productions and the man responsible for bringing Kevin and me together in the first place, tapped into his usual store of patience and wisdom to find ways of solving those few miserable situations that cropped up. When the going gets tough, every writer should be blessed with an agent who is as wise and as good a friend. Ditto for my longtime friend Bill Gladstone, the founder of Waterside Productions and my principal agent. Bill remains a key factor in the success of my writing career and has my everlasting gratitude.

My wife Arynne continues to inspire me anew each day with her love and her dedication to excellence; I appreciate her more than I can say in words. She has increased my proficiency as a writer because of her intelligence and willingness to be forthright by telling me straight out when my writing has missed the mark. Somehow she gets through the steam of wrath that is my usual initial response to her suggestions, but in the end I accept the wisdom of her suggestions and do the rewrite.

Mark Wilson lent a helping hand that made a difference. Emilie Herman was a champion of an editor. And I can't overlook the work of Kevin Shafer, who took over after Emilie left.

Even a sixteenth book accumulates a debt to people who along the way have been more than a little helpful; of the many, I especially want to mention Kimberly Valentini and Maureen Maloney of Waterside, and Josephine Rodriguez. Marianne Stuber did her usual fast turnaround transcribing (not easy with all those strange technical terms and hacker slang) and Jessica Dudgeon kept the office on an even keel. Darci Wood was a champ about the time her Kevin dedicated to getting this book done.

Special thanks to daughter Victoria and son Sheldon for their understanding, and to my twin grandchildren Vincent and Elena, all of whom I trust I will be able to see more once this manuscript is delivered.

To the many who offered us stories, and especially to those whose compelling stories we chose to use, Kevin and I are deeply indebted. They came forward despite significant risks. Had their names been revealed, in many cases they would have faced being dragged away by the men in blue. Even those whose stories weren't used showed courage in their willingness to share, and deserve to be admired for it. We do, indeed, admire them.



# Chapter 1

## Hacking the Casinos for a Million Bucks

*Every time [some software engineer] says, "Nobody will go to the trouble of doing that," there's some kid in Finland who will go to the trouble.*

— Alex Mayfield

There comes a magical gambler's moment when simple thrills magnify to become 3-D fantasies — a moment when greed chews up ethics and the casino system is just another mountain waiting to be conquered. In that single moment the idea of a foolproof way to beat the tables or the machines not only kicks in but kicks one's breath away.

Alex Mayfield and three of his friends did more than daydream. Like many other hacks, this one started as an intellectual exercise just to see if it looked possible. In the end, the four actually beat the system, taking the casinos for "about a million dollars," Alex says.

In the early 1990s, the four were working as consultants in high-tech and playing life loose and casual. "You know — you'd work, make some money, and then not work until you were broke."

Las Vegas was far away, a setting for movies and television shows. So when a technology firm offered the guys an assignment to develop some software and then accompany it to a trade show at a high-tech convention there, they jumped at the opportunity. It would be the first in

Vegas for each of them, a chance to see the flashing lights for themselves, all expenses paid; who would turn that down? The separate suites for each in a major hotel meant that Alex's wife and Mike's girlfriend could be included in the fun. The two couples, plus Larry and Marco, set off for hot times in Sin City.

Alex says they didn't know much about gambling and didn't know what to expect. "You get off the plane and you see all the old ladies playing the slots. It seems funny and ironic, and you soak that in."

After the four had finished doing the trade show, they and the two ladies were sitting around in the casino of their hotel playing slot machines and enjoying free beers when Alex's wife offered a challenge:

*"Aren't these machines based on computers? You guys are into computers, can't you do something so we win more?"*

The guys adjourned to Mike's suite and sat around tossing out questions and offering up theories on how the machines might work.

## **Research**

That was the trigger. The four "got kinda curious about all that, and we started looking into it when we got back home," Alex says, warming up to the vivid memories of that creative phase. It took only a little while for the research to support what they already suspected. "Yeah, they're computer programs basically. So then we were interested in, was there some way that you could crack these machines?"

There were people who had beaten the slot machines by "replacing the firmware" — getting to the computer chip

inside a machine and substituting the programming for a version that would provide much more attractive payoffs than the casino intended. Other teams had done that, but it seemed to require conspiring with a casino employee, and not just any employee but one of the slot machine techies. To Alex and his buddies, “swapping ROMs would have been like hitting an old lady over the head and taking her purse.” They figured if they were going to try this, it would be as a challenge to their programming skills and their intellects. And besides, they had no advanced talents in social engineering; they were computer guys, lacking any knowledge of how you sidle up to a casino employee and propose that he join you in a little scheme to take some money that doesn’t belong to you.

But how would they begin to tackle the problem? Alex explained:

*We were wondering if we could actually predict something about the sequence of the cards. Or maybe we could find a back door [software code allowing later unauthorized access to the program] that some programmer may have put in for his own benefit. All programs are written by programmers, and programmers are mischievous creatures. We thought that somehow we might stumble on a back door, such as pressing some sequence of buttons to change the odds, or a simple programming flaw that we could exploit.*

Alex read the book *The Eudaemonic Pie* by Thomas Bass (Penguin, 1992), the story of how a band of computer guys and physicists in the 1980s beat roulette in Las Vegas using their own invention of a “wearable” computer about the size of a pack of cigarettes to predict the outcome of a roulette play. One team member at the table would click buttons to input the speed of the roulette wheel and how the ball was

spinning, and the computer would then feed tones by radio to a hearing aid in the ear of another team member, who would interpret the signals and place an appropriate bet. They should have walked away with a ton of money but didn't. In Alex's view, "Their scheme clearly had great potential, but it was plagued by cumbersome and unreliable technology. Also, there were many participants, so behavior and interpersonal relations were an issue. We were determined not to repeat their mistakes."

Alex figured it should be easier to beat a computer-based game "because the computer is completely deterministic" — the outcome based on by what has gone before, or, to paraphrase an old software engineer's expression, good data in, good data out. (The original expression looks at this from the negative perspective: "garbage in, garbage out.")

This looked right up his alley. As a youngster, Alex had been a musician, joining a cult band and dreaming of being a rock star, and when that didn't work out had drifted into the study of mathematics. He had a talent for math, and though he had never cared much for schooling (and had dropped out of college), he had pursued the subject enough to have a fairly solid level of competence.

Deciding that some research was called for, he traveled to Washington, DC, to spend some time in the reading room of the Patent Office. "I figured somebody might have been stupid enough to put all the code in the patent" for a video poker machine. And sure enough, he was right. "At that time, dumping a ream of object code into a patent was a way for a patent filer to protect his invention, since the code certainly contains a very complete description of his invention, but in a form that isn't terribly user-friendly. I got some microfilm with the object code in it and then scanned the pages of hex digits for interesting sections, which had to be disassembled into [a usable form]."

Analyzing the code uncovered a few secrets that the team found intriguing, but they concluded that the only way to make any real progress would be to get their hands on the specific type of machine they wanted to hack so they could look at the code for themselves.

As a team, the guys were well matched. Mike was a better-than-competent programmer, stronger than the other three on hardware design. Marco, another sharp programmer, was an Eastern European immigrant who looked like a teenager. But he was something of a daredevil, approaching everything with a can-do, smart-ass attitude. Alex excelled at programming and was the one who contributed the knowledge of cryptography they would need. Larry wasn't much of a programmer and because of a motorcycle accident couldn't travel much, but was a great organizer who kept the project on track and everybody focused on what needed to be done at each stage.

After their initial research, Alex "sort of forgot about" the project. Marco, though, was hot for the idea. He kept insisting, "It's not that big a deal, there's thirteen states where you can legally buy machines." Finally he talked the others into giving it a try. "We figured, what the hell." Each chipped in enough money to bankroll the travel and the cost of a machine. They headed once again for Vegas — this time at their own expense and with another goal in mind.

Alex says, "To buy a slot machine, basically you just had to go in and show ID from a state where these machines are legal to own. With a driver's license from a legal state, they pretty much didn't ask a lot of questions." One of the guys had a convenient connection to a Nevada resident. "He was like somebody's girlfriend's uncle or something, and he lived in Vegas."

They chose Mike as the one to talk to this man because "he has a sales-y kind of manner, a very presentable sort of

guy. The assumption is that you're going to use it for illegal gambling. It's like guns," Alex explained. A lot of the machines get *gray-marketed* — sold outside accepted channels — to places like social clubs. Still, he found it surprising that "we could buy the exact same production units that they use on the casino floor."

Mike paid the man 1,500 bucks for a machine, a Japanese brand. "Then two of us put this damn thing in a car. We drove it home as if we had a baby in the back seat."

## **Developing the Hack**

Mike, Alex, and Marco lugged the machine upstairs to the second floor of a house where they had been offered the use of a spare bedroom. The thrill of the experience would long be remembered by Alex as one of the most exciting in his life.

*We open it up, we take out the ROM, we figure out what processor it is. I had made a decision to get this Japanese machine that looked like a knockoff of one of the big brands. I just figured the engineers might have been working under more pressure, they might have been a little lazy or a little sloppy.*

*It turned out I was right. They had used a 6809 [chip], similar to a 6502 that you saw in an Apple II or an Atari. It was an 8-bit chip with a 64K memory space. I was an assembly language programmer, so this was familiar.*

The machine Alex had chosen was one that had been around for some 10 years. Whenever a casino wants to buy a machine of a new design, the Las Vegas Gaming Commission has to study the programming and make sure